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Disney's Fantasia



Disney's Fantasia

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Data Statements

Telecomsoft Sale

Telecomsoft, the company that owns the Rainbow, Firebird and Silverbird labels is up for sale. Rumours have been riddling in our ears for a while and even now, with the probing tongue of confirmation leaning on our shoulders, the reality of a sell-off is hard to hear. But wait, you starting to sound like one of Rainbow's owners.

During the past five or six months, while suggestions of a sale were being relayed by the company's upper echelons, Telecomsoft's general man-



ager is expected for Telecomsoft, whose turnover amounted to about 10 million last year, which is what one might expect from a company that boasts such a healthy presence in the budget market.

The only fly in Telecomsoft's ointment is the loss of a major part of Rainbow's software resources and development team. As reported in last month's Data Statements, Hildred and company have departed to Microphone, which must leave their old label in a vulnerable position when a buyer is announced.

Thoughts of a split are being dominated by My Byrne, who recently claimed that the data labels together represented a winning formula in the best software houses in Europe.



ago, Paula Byrne, and her team were putting their weight behind a management buy-out. Unable to reach a suitable agreement, the team has now succeeded in leaving and the company has been offered for sale on the open market.

But we obviously being kept a close watch, but the Micro group Activision and NEC have all been named as prospective buyers. A high



A Star is Bought

Compendium has announced that it will be stocking the best Microcom LC10 printers following successful field trials. The Longborough-based mail order company, already stocks Corona and Panasonic machines, but the price and quality of the LC10 means and LC18-C colour printers have proved impossible to ignore.

In keeping with Compendium's standard practice, a starter pack worth over £30 will be offered with each printer sold. The pack contains 1,000 sheets of paper, an interface cable for the purchaser's computer, and a spare ribbon.

Contact: Compendium, Jubilee Drive, Longborough, Leam LE11 6XS. Tel: (0589) 618444.

Pumpkins with Garlic

Pallase Software has signed a deal to distribute the software from a new French company, Delphine. Owned by notorious playboy Paul de Senneville (France's answer to Richard Branson), Delphine is an

offshoot of an extremely successful music company of the same name.

Part of the attraction of the new software house is the reputation of its owner who, if reports are to be believed, is known as Goldfinger to the French national press because every thing he touches turns to gold (fancy

I thought that was Ringo McCartney).

The first products from Pallase's new signing should be appearing just before summer.

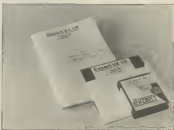
Contact: Pallase Software, The Old Forge Business Centre, 7 Cheltenham Road, London W1 8JX. Tel. 01-278 8751.

Enhanced Expert

Tritrigue have just released an enhanced version of the Expert Cartridge operating system. For users of the cartridge and a disk system, the latest improvements mean that the cartridge can be reprogrammed while the original program is still in memory.

Some of the cartridge upgrades have been improved, such as a print and protect editors, which can interrupt a game and then return after the changes have been made, function key commands and hexadecimal scrolling by the code monitor, and fully documented enhanced opcodes plus faster save routines.

The Expert Enhancement Disk V4 (R costs £5.95). Contact: Tritrigue Unit 1, 253 New Works Road, Bradford BD5 9GP. Tel. (0274) 681115.



Slaying Competition

A good job off the M42 may seem like a strange venue for an American civil war, but that is what happened recently when Microprose engaged Electronic Arts in a duel to the death.

Casualties were low in the opening battles dashed from tree to tree armed with paint guns and giggles, and at the end of the day, Microprose was crowned as glory while EA was covered in paint.

The 'friendly' war was played out in the battle zone owned by the Combat Game company, who claimed that no real harm came to the competitors. Perhaps EA's valiant but unsuccessful showing may have been due to an unconfirmed report that Microprose's ex-USAF hero 'Wild Bill' Bradley, was preparing to do a surprise sacking run to ensure victory.

Of course, all this warlike activity couldn't possibly have anything to do with the fact that Microprose have bought the rights to *Command Military Simulations II*, the updated and improved version of the battle simu-



The combined forces of Microprose and Electronic Arts

lator which was recently released by Headland.
Contact: Microprose, 2 Market Place, Tisbury, Glos GL8 3DA. Tel. (0844) 34126.

Electronic Arts, Langley Business Centre, 11-49 Station Road, Langley, Berkshire SL1 8YN. Tel. (0753) 45442.
The Combat Game, Tel. 011-610 4049 or (0844) 610011.

Gribbly's Back

It's like meeting an old friend. Gribbly Gribbly has returned to the Hawson fold after an absence of five years or so. In Gribbly's Special Day One, our one-eyed Hologram hero travels where he has tried before, but this time he's a real monkey. For the first time in release, the scrolling routine has been updated to make it ultra smooth. This game is a real vote for £3.99.

Also back from Hawson are *Stardust*, *Cyberdome Warrior* and *Mazemania*. *Raffinella* (Broken) Crook has set the scenario of his latest game, *Stardust*, in a world of endangered fauna. Impressed by the evil Queen, Spindell has stolen the precious fairy folk before they are all wiped out.

Cyberdome Warrior is a rugged, brutal round-up for beauty hunters, and *Mazemania* is an action puzzle which requires skill and coordination.



Hawson's Stardust puts its mark on a space and time classic.

Contact: Hawson, 366 Milton Park, Milton, Abingdon, Oxon OX14 4RN.

Tel (0212) 832930.

Spirit Away

In the USA, the First Spirit software house has been working away releasing several new products. MACH is an arcade game in which the player takes the role of a Marescaucolic Armed Computer Haxxon equipped with deadly hand controls and protective screen play.

On the serious side a graphics programming package, Base 6, for the C128 should soon be appearing over here. The package operates in 80-column mode and adds 50 new graphics commands to allow programmers to produce effects such as

windows, keys, patterns and borders. The package also includes a run-time library so that programs can still be used even without Base 6.

To complement Base 6 there is also a Base 6 Toolkit. This provides with a point and click operating environment to the host package and adds disk commands to the Basic instruction vocabulary. There is also a program which allows First Spirit graphics to be loaded and enhanced.

On the slightly more offbeat side, there is ESP (Enter which sets the unit for powers of elevenness, premonition and telepathy). As the manual is British prose are available, but they'll no doubt be appearing soon.

Up, Up and Away

Star Macromen are sponsoring an attempt to fly a hot-air balloon over the world's highest peak, Mount Everest. The attempt will be made in autumn by Per Lindstrand and Chris Bonington.

Montaigne is no stranger to the 29,000 ft high mountain after two successful attempts at becoming the first man to climb its north-west face in 1985. Lindstrand is a vastly experienced balloonist whose most celebrated feat has been the first trans-atlantic crossing in a hot air balloon (with Richard Branson in 1987) and passing the altitude record the following year, reaching a height of 83,000 feet.

The third member of the team is cameraman Mark Jerrard, who will be recording the incredible feat for posterity.

Contact: Star Macromen UK, Crown House, 48 Underlyde Road, Ealing, London W5 2NS. Tel: 01-879 3239.

PC Bundle

Commodore has announced that its MPS128 package is to be bundled with the PC16 III for the bargain price of £299 plus VAT. This is part of the new pricing structure (pace rate, to pass and met) that the company announced recently, and shows £18 off the previous cost of the PC16 III without the printer!

Similarly the entry level PC80 is now £259 cheaper at £2299 with

proportional cost upwards throughout the range. Students are to gain extra benefits as Commodore continues to chase the education market. In a special deal, National Union of Students members will get a free copy of Timesweek Publishers Ltd GTP package with every PC16-80 sold through Electronic Distribution.

Contact: CBM (UK), Commodore House, The Switchback, Garsfield Road, Macclesfield, Cheshire SK6 7XA. Tel: (0625) 778032.

Wrong Data

In the March edition of *Four Commodore*, we mentioned MDK Industries' PC Toolkit which is designed so that a computer mis-wired upon it can be pulled over any standard height desk. Unfortunately, the phone number got slightly mangled. Our apologies to MDK and here's their correct number (0402) 211322.

The 1984 British International Toy & Hobby Fair was held at the Earl's Court Exhibition Centre, and it needed a reason of that ilk to comfortably accommodate the vast number of stands.

Everything you'd expect was there ranging from *Buffy Comic Bookable* to Japanese super-babies and, of course, to-tech electronic toys. There weren't as many electronic gadgets as I'd expected, but the ones that did appear were of a high quality indeed.

Bandai, as expected, had a veritable splendour of video-controlled cars, and some of them wouldn't have looked out of place on the Star Wars III! Apart from these cars, there were also quite a few hand-held games. These were principally sports games and included soccer, volleyball, car racing and tennis. In style they are along the lines of those games which say that you get it! Bandai markets for a couple of pounds. I preferred their *Catan-Maze* game though. I doubt that Warner Brothers would appreciate how much the cat resembled Sybille. There were three shooting games, too. *Space Force Tank Shooting* and *Defence Gun*. I didn't get to play them, but the only difference appeared to be what you used to shoot with, and what you shot at.

Much more exciting was Bandai's *Laser Challenge*. This is a mixture of futuristic-looking gun and a video cassette. Just put the tape into your recorder and all's ready. This reminded me of the *Capitan Power* toys, interactive television they call it. The tape shows a jet zooming all over the place and surprise surprise, you have to shoot it. Try as I might, my score stayed stuck at zero. Your score doesn't appear on the screen but on a small panel just below the sight on the gun. The video must appear to be almost as laser-like quality. I'd really like to see this take off, (no pun intended), as the idea is well conceived and, for me, sophisticated, sophisticated who aren't able to watch *Capitan Power*, it's an admirable substitute. To make it successful though Bandai will need to expand the range of tapes. There are apparently two more tapes to be had. *Murder Maze* and *Chase*. I couldn't find them, so whether there's up to the standard of the first one remains to be seen.

At the VTech I found the emphasis was firmly on education. There was a wide range of preschool toys on

show, bright and colourful, with lots of noises and buttons to push. Small Jack is a brightly coloured telephone with a different get-to-know button. It's pushing the relevant button, the caller is put through to the person shown. All the characters are on there, such as Marmite, Diddy and Peller-man, as well as those who might not spring to mind so easily (have you ever noticed an antenanny?). These characters will call back when the receiver is replaced. There are also buttons with sounds on that make the relevant noise and a small musical keyboard. I'm sure parents are going to love their kids playing with that during the film they've been waiting to see.

Small Ray comes with eight blocks which fit into the side of the box. The box asks a question and

a plastic steering wheel on the end of a plunger. In the middle of the wheel was a red button. When pushed it let out a beep again. You could start the whole thing on to a chair and drive round all day without leaving the room. VTech have updated this idea and improved it no end. Talking *Little Man*, drives around the table down to learn to eight tones on the car radio and five types of noise. There are working indicators, a gear stick and for puppy vaggers a waphaph. Add this to the alphabet and shapes that are on the dashboard and you've got enough to keep even the most easily bored kid happy on a long journey. The whole thing can be attached to a high chair or side of a cot by two Velcro straps. Why didn't we have them in my day? It is rather expensive.

We spent some time but our 10 mins around the Toy & Hobby Fair

By Alan Batchelor

Toys for Tomorrow

James has to put the correct blocks in the holes. The questions are the rounded numbers' letters' animals' etc.

Talk Board is for slightly older children, and it's shaped like the old *Speak and Spell* toy. Again it asks the usual questions but you also get an electronic keyboard to play.

Yet another talking toy is *Master Game Detective*. It recognises a Wild West-style engine and a truck. The *Master Game* toy relies on the four sensory stimuli (taste, touch, sight, sound) that can be put onto the robot's mind. Each plays a different tune and there are four blocks, similar to the *School Bus* ones, to complete the set.

When I was a boy we used to have

though, at just under £40. That's almost a pound in old money. They don't know that in born today.

Wizard and Miss Wizard are follow the type games. Mike remembers James from a few years back? These, however, have a more game atmosphere than the first.

Naturally there had to be at least one sports game and VTech deliver three: *Talking Basketball*, *Soccer* and *Baseball* to be precise. They all look good and all have electronic, if simple, graphics. *Soccer* and *Baseball* have a realistic appearance's 'game'. *Baseball* never has true to life sound effects.

Football Wizard, *Speedballer* and *Baseball Command* also have the 'Talking' profile. *Football* and *Speech*

Below: TROs - an important new genre



TIME

RUNNER



Below: The ProComputer 2000 - definitely the Runner



Below: The Runner - a small, portable, and light device - a great choice for all runners and joggers

Just as are legal choices for this type of game. But *Deathtrap*? My doubt, like my steps, were soon laid to rest. A good game for those with some spare cash.

Pre-Computer 1000 is the buzzword. The top half contains a narrow screen, and just below that a range of buttons which are used for selecting your chosen subject including science, geography, and history. Below these is a QWERTY keyboard - just choose your subject, push a level and off you go. The questions are by no means easy. On level three I got only half the questions right, so a feature I appreciated was the HELP button. This came off with two levels and each time you ask for help, the computer gives you a hint of the answer. On the third help, it tells you the solution. There are to be a further five questions until you get an answer. I can't wait for my specialist subject, *Peasants Three* to appear. The others are *General Knowledge 1*, *Bible Knowledge*, *Amazons* and *Spells*. This was my favourite slot in the Show.

There were also had a number of music keyboards and something called *Recorder* which connects to your TV and runs animated programs to teach basic musicals to Lads aged five and above. It usually for this type of thing, there were much good and mean sets to add on. There came cartridges will also be available. *Pre-school*, *Brain Teasers* and *Amazons*. A cute robot in your friend and guide through these adventures.

The *Amazons* *Wahh-Wharr* was looking good. For all those who miss the hydraulic fun of *Super Hero On* at your local arcade, the *Power Chair* is for you! It lifts, banks and generally moves in synchronisation with your joystick. It comes with a joystick, and you mount your monitor on the chair, presumably so that when you turn a corner, you can still see the screen. This is all well and good, but how many people have got the space for one of these? The *Light Gun* is much more sensible. Resembling something Dan Dare might use, it has a reed action and auto fire. Surely anyone who uses auto fire will be bounced off over the river like a squash ball. Anyway, there's a seat add on to consent it into a rifle, if you want.

Two word little games from Ellis Design caught my eye. There's a plastic sphere with a small gap at the base inside the shell is a ball with a maze engraved on its surface. The idea is to manoeuvre the ball so as to get a

lateral light from one end of the maze to the other. Having seen someone try and fail miserably to complete it, I wasn't keen to make a public fool of myself. It will keep you busy during those cold summer evenings and is eye-light fun.

Demomaster 'What a name! What a game!' It looks like a cube, roughly six inches square. On each side there are six microchips of steel. They're exposed randomly on each side. When turned on, a set of lights shows the order that the chips must be touched to win. When the first one's completed, it's only stage two and so on. There's a time limit naturally, and it seems generous until you realize that a mistake means starting over. In this case, mistakes means not only touching the wrong chips, but repeating a move. Unless it's switched off, it will remember the latest move. Which I was then one of the Ellis Design people

completed it in what seemed like only seconds. For an overall it'll take much longer. I love this so much I wanted to marry it.

Ever bored of *Wayne*? Neither had I but soon you will miss *James*. *Letters* appears in the shops. It's an animated word game. You get a video tape containing cartoons, letters. They appear every five seconds, and when these have ramped up you have fifteen seconds to make the best winning word you can. Things don't always go your way - occasionally a wrong word and you have to exchange some chips with the other players. That means even the editor could win a game like this. The game comes from Australia - made by me as an apology for *Neighbours*.

There you have it. Lots of fun and I hope these tips all got British buyers. It'd be a shame not to see them sold all over here.



Demomaster - *Seller* - and *Viper* game that will be it!



Small Talk from *Letters* - a video game without game



It all - *Recorder* - you can turn your TV into an educational toy

Turbo Touch



Are you a two-fingered typist? Could a tortoise write more words per minute. If so, 'Turbo Touch' could change all that!

As the name suggests, this utility is designed to turbo charge your typing ability. If you practice frequently with 'Turbo Touch', you should be able to accommodate your tempo to exceed 800 keys per minute and reduce your error rate to less than one percent, which is not bad for a program written entirely in Basic. 'Turbo Touch' also features multi-colour graphics, sound effects, perpetual feedback (monitored against the C-64 internal clock), and artificial intelligence.

Artificial intelligence in this context means the ability to read, interpret and translate any given text into key strokes for practice purposes. In other words, 'Turbo Touch' can be customised according to the literacy level of the user.

Even young children can learn with this program, because parents and school teachers can make the exercises very easy if necessary. It is even possible to create exercises in other languages, so long as they use the same alphabet as English. Such flexibility makes this program handy for use by a very wide range of people, and the variety largely eliminates the inevitable boredom of repeatedly typing 'The quick brown

fox' etc., which is typical of most other typing tutors.

USING 'TURBO TOUCH'

There will be two prompts when you start up. The first asks which exercise you want to load. You may select one of three prebuilt exercises.

All finger, tap letters and practice text, or a previously customised exercise. The second prompt asks how many keys per minute should be allowed before eliminating the help function which highlights the keys you must press. Help is allowed up to a maximum of 150 keys per minute above that the keys will only be highlighted to correct mistakes.

The 'all finger' exercise shows all the proper finger positions needed to become a proficient touch typist. You'll need to practice often with 'all finger' for a number of weeks (exercise) to develop coordination. Once an exercise is loaded, the computer screen displays a keyboard with all black keys, except for the 'home keys' which are blue (for easy reference). Your fingers should be rest lightly on the 'home keys' (without pressing them) below and above each key circle, in the following manner:

THUMB (space) Either thumb can be used on the space bar.

When you're below the speed set in the second prompt (it starts up), the keys will highlight themselves in the order in which they must be entered. The colour of the text line will be changed one character at a time, each time the correct key is entered. Mistakes will result in an annoying beeping sound, which is intended to act as 'negative reinforcement'. Multiple mistakes on the same key will continue to sound off the horn, but only one error per key will be counted in the feedback updates at the end of each text line. If, after making several errors, the beeping starts to drive you gaggle-eyed, then just lower the values.

Once you're familiar with the 'home keys' the rest is relatively easy. The remaining keys need only be learned in terms of how many keys above, below or next to the 'home keys' they are. The only other thing you'll still have to learn is using the SHIFT keys for capital letters and certain symbols and punctuation. SHIFT-ed characters should be entered using one hand to press the character key, while the other finger of the opposite hand holds down the SHIFT key (on either

LEFT (A) Little Finger
(S) Ring Finger
(M) Middle Finger
(I) Index Finger

RIGHT (J) Index Finger
(M) Middle Finger
(I) Ring Finger
(A) Little Finger

[illegible]

Turbo Touch keeps track of the total keys, total errors, and total time elapsed since the file was loaded. Using this information, the program updates the error rate and the average number of keys per minute each time our fall line of text has been processed. A separate file gets saved in order to indicate that the read of line parties is over. Another file gets saved before the

CREATING AN EXERCISE FILE

There's nothing to a **LOAD** and **RUN** by the maker's end past start typing whatever you like. The file maker works like a simple word processor: **DEL** deletes, **RETURN** goes to the next line, and the **F2** key saves the file under a name to be provided by the user.

The Dell has the ability to back trace the recent 40 line lengths of the file a user's entry. But it's a good idea to double check, for mistakes, so that you don't have to delete two more lines to correct them if you don't notice them till much later. The Dell has a nice menu that allows

words are cut off at the ends of lines. In that event you can delete the partial word, and then press RETURN to go to the next line and enter the full word.

After saving a file, you can make as many copies as you like and the program will automatically name another file by changing the last few characters of the file name to indicate the copy number. You don't have to bother with copy numbers yourself since file names can be shortened (example: "abc copy 4" is the same as "abc4").

GETTING IT ALL IN

There are three programs associated with Turbo Touch, and these are as follows:

TYPING TOUCH—The main program is **TT THE MAKER**. An editor that allows you to define your typing exercises.

TT SCREEN MAKER - A program that saves out the video screen used by TURBO TUNER.

All of the programs are in French and should be viewed and saved using our new video equipment. The lesson

pages for more details). Each program should be entered and saved to disk separately. The program **TV SCREEN MAKER** when **RUN** has a new file out to disk called **TV/INTRO SCREEN**. Copy this to your disk the program **TV SCREEN MAKER** is on, because you need it.

The finished Turbo Touch suite of covers should consist of:

TUNING TOUCH
TV INTRO SCREEN
TV FILE MANAGER

Once you have these programs you can start creating your typing program. You should load and run the program **TT FILE MAKER** in order to create your test file. You will not be able to use **TURBO TOUCH** until you have created at least one test file.

Southwestern Bar Brawl

Would you purchase software through our Readers Service department? Then you will find that a number of concerns have been included on the disk. Unfortunately, time of space prevents us from including them here.

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Disk Tricks



There's a lot more to Commodore disk drives than first meets the I/Q

Century to what you may believe, Commodore disk drives are the most powerful available for any 8-bit computer. They have a comprehensive feature set: DKS, RAM, ROM and 6502 processor. It is the software support of the DKS that lets the system shine. Under the control of certain cartridges, the DKS even outpaces the BBC drive.

This article contains a selection of simple programs and hints which you don't usually find in Commodore's manual.

Easy loader

Before today, you have probably loaded in the directory to check on a program name. You may have entered up and put LOAD before the filename and *J* after it — this is useful but also wasteful. This method allows you to put *J* or *J.1* after the name in the directory entry when you are saving the program. By loading the directory, moving to the correct name and pressing SHIFT and RUN/STOP, you will be able to load your program quickly and easily. This is even better if you have an extended basic with a directory read facility installed.

```
SAVE" FILENAME<SP> [D]
D<SP> "J adds J
SAVEFILENAME <SP> [D] &
[D] " J adds J.1
```

SP = shift + space
[D] = Commodore key + D
" = shift +

The only restriction about this method is that filenames must be 11 characters or less.

Save and Replace

I'm sure that you have heard the disaster of the function scrambling disk, yet it is one of the most important of all disk facilities. Apparently the problem is caused by entering the drive number. This is a hangover of double-disk systems, where the two drives were assigned the drive numbers 0 and 1. Any Commodore single drive is 0 and entering the number causes the drive to ignore some of the available buffers, corrupting the disk where there is a lot of shuffling of files to be done.

The solution is always to include the drive number.

```
SAVE" FILENAME"J
becomes
SAVE"0 FILENAME"J
```

This method has never given me any problems.

Scratch one character files

Sometimes due to a typing error you get an unwanted file on disk with only one letter on the name. No problem, scratch it. Wrong, it won't scratch. The solution is

```
OPEN0,1,5"0" CLOSE 0
```

Selective Directories

Commodore DKS allows you to view specific parts of the directory, as well

as the standard directory. When patterns matching wild characters are used, it becomes a powerful command allowing you to check a disk for a particular program. Here are some examples.

```
LOAD"NAME"J
= lists only NAME entries
LOAD"SCOT"J
= lists all entries beginning with CO
LOAD"0"5"J
= lists all requested files
LOAD"0 MUSIC" J
= lists only programs beginning with MUSIC
LOAD"0754"J
= lists all four character files with 04 in the end
```

Software Speed-up

This allows small speed increases with the search, validate and stream commands by speeding up the movement of the head between tracks.

```
OFFEN0,1,5 PRINT"0" "NAME"
CLOSE(7)CHRS(20)CHRS(1)CHRS
(15)
```

Unobtrusive Load

You will, no doubt, have found it annoying that there is no way to load a program from inside another program without disturbing the program to be run. This method calls the Karal routine directly, so that the load will be executed only once, and the program will continue from the correct line after the help screen, machine code or machine format has been loaded.

```
FORKE0,1,5 SYS0020"NAME"J,1
SYS00200
```

Rescuing Unclosed Files

I'm sure you have come across the problem. When working a file, an error stops your program, so the computer is switched off by accident. Most of the data has been transferred to disk and should be easy to retrieve. Strangely enough when you try to reopen the file, you get a WRITE FILE OPEN error. Examining the directory reveals an answer, inside the filename. This means that the file was not properly closed and is therefore useless. An undocumented command to the rescue! This allows you to open the file and remove as much of it as

pass file using INPUT + 5 or GET + 5
OPEN(1,5 "FILENAME.M"

Append

If you are manipulating sequential files, particularly in databases, then you know that the only way to add information to an existing file is to reload the whole thing, add the new info and re-save. The DOS provides an easy way of adding the information with the command of **APPEND**. The DOS can reopen the file, and tack the extra information on the end of the existing file. Note that this is only an append and, as such, will not correct information in the middle of a file. Nevertheless, it saves considerable time when no alterations need to be made to the first file.

```
OPEN(1,5,"FILENAME.APPEND"
```

Copy and Concatenate

This is a very under-used command, as it usually only creates the same file on the same disk under a different name. Even with that limitation, it can still be useful. For example, when using a database or word processor you could copy a saved file as "BACKUP" and allow this to be recalled as an "Open" option in case of an irretrievable disaster. The syntax is

```
OPEN(1,1,5,COPY NEWFILE =  
OLDFILE"
```

Copy also allows you to append files that are previously stored on disk, and is useful for a word processor.

```
OPEN(1,1,5,"CTOTAL = FILE1,  
FILE2, FILE3"
```

Reset Drive

This command will reset the drive completely, as if it had been just turned on. The device number and computer type will be reset.

```
OPEN(1,1,5,"00" CLOSE(1)
```

Change Device Numbers

This allows the standard disk drive (device 1) to adopt a different number, which is essential if you need to use two drives at once. NM is the number that you wish to allocate to the drive (usually 9).

```
OPEN(1,2,5 PRINT #15, "M-  
9"CHR (10) CHR5 (5) CHR5 (7)  
CHR5 (70)CHR5 (84)CHR5 (84)CHR5 (84)
```

Well that's all the questions - now for some monster programs which deal with features of the C64 operating system.

Directory

This compact program can be used as a sub-routine in your Basic program, or during program development. Any business program must have a directory unit, and this is as good as any.

```
10 OPEN (1,1,5 "3"  
20 GET = 1,X1,X3  
30 GET = 1,X1,X3,X3,X3  
40 IF ST THEN CLOSE(1)  
RETURN  
50 GET = 1,X3 IF M5 = "" THEN  
PRINT "GOTO 30"  
60 IF M5 = CHR5 (34) THEN P =  
NOT P  
70 IF P THEN PRINT X3,  
80 GOTO 30
```

Blocks Free

This scans through the directory and counts the **BLOCKS FREE** statements, and puts it into BP. This can be useful for the user to find out how much space there is on the disk. Also, if you know the length of the file you are saving, you can check to see if there is enough room on the disk before you start saving.

```
10 OPEN (1,1,5,"33"  
20 FOR I = 1 TO 35 GET  
10:NEXT  
30 GET 10:Y5 CLOSE (1)  
40 BP = ASC (X5+CHR5(10)) +  
50:ASC (Y5 + CHR5(10))  
50 PRINT BP "BLOCKS FREE"  
RETURN
```

Block Save

Most people know that altering the Basic pointers at locations 40-46 allows any block of memory to be saved. This has no drawbacks because it works your Basic program. The below method is useful if you have to save graphics data from within a program.

```
10 SYSTEM "FILENAME"1,1  
20 POKE 1914: POKE 194,48:REM  
LOW:HIGH BYTE OF START
```

```
ADDRESS  
30 POKE 134,9:POKE 171,4:REM  
LOW:HIGH BYTE OF END  
ADDRESS  
40 SYS42997
```

Block Load

This method does not alter the Basic pointers like the normal 1,1 routine, which gives an **OUT OF MEMORY** error.

```
10 OPEN(1,1,5 "FILENAME.P.R"  
POKE 170,4:SYS45493:CLOSE(1)
```

Load Address

It is often useful to find a program's load address because it gives a clue as to what the program actually does. Use the following:

```
10 INPUT "PROGRAM NAME", X1  
20 OPEN(1,1,5 X1 "P.R"  
30 GET = 1,X1,Y5  
40 PRINTASC (X3 + CHR5 (5))  
+356:ASC (Y5 + CHR5(5))  
50 CLOSE(1)
```

Device Indicator

This is a handy routine that gives the device number which was last used in position, this means that programs can tell if the user loaded with tape or disk, and which disk it was. **D-PEEK (100)** will store the device number in D.

Keep track of files

Using several files can sometimes become messy, especially where they all have to be closed in a complex program. **SYS 52510** closes all files, and is useful if an error condition occurs. **PEEK (152)** will give the number of active files at any time.

Lost filename

SYS 42941 will print the name of the latest file that has been loaded. It was part of the **SEARCHING FOR** message routine. Naturally, if the routine has been disabled, then this hint will not work.

That should be enough questions for you. Prepare yourself for further disk delights in the near future.

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Banker 128

By P. Stubbs



Keep your personal finances on a tight rein with new financial program

This program is designed to calculate, store, and display your bank account details. This is done by entering in the details of your account(s) and then saving them in the form of a sequential file. On re-loading this file, you can then simply update (or add to) from where you left before. The Banker program will also print out bank-style statements showing up-to-date account balances. Banker is designed to work with a Commodore style printer, and most other printers that use channel 14.

Getting Started

First you need to form a P.I.N. code. On loading you will be confronted with the loader screen. At this stage, the you must enter (in the first row) your main name (left arrow). You will find this key located at the top right-hand side of your keyboard. Enter this key, and press [RETURN]. You are now asked various questions regarding your personal use of Banker.

First you are asked to enter a P.I.N. code. This can be any code you wish to enter that the computer will then use as a filename for your personal details. (Please note that this code is not intended as some form of security procedure, simply a filename to use when entering personal details on future loadings). Enter your P.I.N. code followed by [RETURN]. You will now be asked to confirm it. If it's correct simply type "Y" for yes.

The next question is, how many accounts do you intend to use this program for (BANKER can be used for up to ten bank accounts). For the purpose of this demonstration type 1 [RETURN]. You are now asked to input the year. You will see that "81" has been entered in for you. If that is the correct year, simply press [RETURN]. If that is not the correct year then tap in "79" or whatever the year is and [RETURN].

Account Details

You are now in the account field, and are looking at the words ACCOUNT 1. This is the account we are going to answer questions on first. The first question is NAME OF BANK, please do not use any punctuation in your reply. Now answer the questions ACCOUNT TITLE and FILENAME FOR THIS BANK. This is the filename the computer will give to your computerized account file so as to save it for future use. Any filename will do (except the filename you have already used as the name of your P.I.N. file).

Next, you're asked about standing orders, the cost per month, when you first started paying the order, and how long the program will last (The computer needs this information to calculate when the payment ends, and therefore when to start debiting them from your file). If the order is of the permanent kind - for example a standing order to the Gas Company

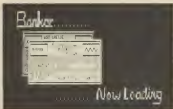
and therefore carries no expiration, enter 5 in the question "IS THIS A STANDING ORDER OR A REPAYABLE LOAN (S/L)".

Confirmation Mode

If you're using this program for more than one account, you are now asked to go through all the details again for ACCOUNT 1 and any subsequent accounts. Since for the sake of this demonstration we are only using one account we now move into the confirmation mode. The computer will now run through your answers so you can confirm them. If there is a fault in the details, answer N at the question CORRECT (Y/N) and you'll be returned to the start to correct your mistake. If that is correct, answer Y and a file will be formed with your new P.I.N. code. You are now back at the loader screen, tap in your newly formed P.I.N. number, and the computer will load your file into the memory.

On subsequent loadings of this program, the above procedure need only be followed if there are any changes to your personal details. If there are no changes, simply type in your P.I.N. code.

Before we can enter the MASTER MENU, there are still a few questions to answer. The answers to these questions have already been filed in for you using the information from your P.I.N. file, so all you are doing



for the most part is confirming the amount.

The year has been entered for you, leaving you to input today's date. Please ensure that you use the correct format (dd MM) when entering the date.

There is one question in this field where (as you are a first time user) the answer has been entered incorrectly. This is the question which asks, 'ARE YOU LOADING THE FILE FOR THE FIRST TIME?' The answer NO has been entered, whereas we are in fact loading the file for the first time, so you'll need to change the answer to YES.

After completion of these questions, you will encounter another confirmation field - if you have completed the answers correctly, answer Y for yes. You are now into the Master Menu.

The Master Menu

There are six options at the top of the Master Menu screen - Cheques, Cashpoint, Bank Orders, Payments, Totals and Others. And five options at the bottom - Save to disk, Update file, Chequehistory, Printer options, and End of run. We are now going to deal with the top six.

Press the [Q] key, for CHEQUES, and you will be faced with the CHEQUES MENU.

You will see you are faced with three options on the cheque menu as option three is self-explanatory, we will deal with the first two.

OPTION 1: Press the [I] key, for MAKE AN ENTRY, and you will be faced with the CHEQUES ENTRY MENU - simply answer the questions CHEQUE NUMBER, DATE, AMOUNT, and ITEM. On the cheque number it is advised for simplicity that you enter the last three digits of the number entered on the whole number. When using it for the first time you'll find a '1' has been entered for you just type over that, as it is for your next entry, where it will show your next cheque number (just as long as your cheques go up to 9999). When filling in the date, it is the date that the cheque was entered on that is needed, and please remember to use the correct format. On filling in the amount, do not use the £ sign.

When all the cheques on dish have been entered, depress the [F1]. This can only be done once you have returned to the 'CHEQUE NUMBER' mode.

OPTION 2: After exiting the ENTRY MODE you will automatically be taken into the VIEW MODE. After viewing your entries, hit any key and you will be returned to the Master Menu.

CASHPOINT AND OTHERS: The exact same procedure is repeated for both the CASHPOINT and OTHERS options. In the OTHERS mode you will see that under ITEM, cheque book has been entered as for you automatically, this is because this is the first of times the OTHERS field has been designed for, dedicating the book's

charges for a new cheque book, a book's anything that is deducted from your account, rather than cheques, cashpoint entries, and standing orders. If your OTHERS entry is not for "cheque book" simply type your item as over "cheque book". Please remember to enter any remaining letters of "cheque book" should your item be shorter.

OPTION 4: On entering this field you will be faced with a slightly different menu. Option 1 is used for viewing all of your bank's orders on a separate sheet (this sheet is not associated with the rest of your account and is for viewing only). On leaving this option you will find yourself back in the BANK ORDERS MENU.

Option 2 is a very powerful option that will calculate all your bank orders for this month. On subsequent loadings of the file this option will check the date of the loading and decide whether more orders need to be added or not. It will also take into account when a standing order has finished (using information given about that order in your P18 file) and enter a "CANCELLED" entry for that order from that date on.

OPTION 3: On entering this field, you'll see the usual menu of MAKE AN ENTRY, VIEW ENTRIES, and CHEQUES. On entering the MAKE AN ENTRY mode, you'll see that pay is entered in for you automatically, as the payments mode is designed to take any income to your account, if pay is not the required item, simply type over it with your item (as we did with "cheque book" in the Others mode).

On viewing your entries, you will see that the first entry shown is "BALANCE", and that it will be valued at 00.00. Don't worry about this at the moment, as we will deal with this at a later stage. You will also see that in this field, the total expenditure, total income, and balance is revealed, these figures being the accumulation of the whole account (cheques, cashpoint, standing orders, etc).

Please remember that for the total expenditure and (and therefore balance) to work correctly the computer has to calculate the standing orders. Therefore for a first loading, you must enter the VIEW BANK ORDERS field before using option 4.

OPTION 4—This option simply shows the TOTAL EXPENDITURE, TOTAL INCOME, and BALANCE, as did the new mode of PAYMENTS TO THE BANK (option 3). The difference with this option is it also shows the breakdown of each sub-section (mortgage, car/pump, etc.) as to how it reached the figure shown at TOTAL EXPENDITURE.

Please note that as with option 3 (in the total expenditure) and therefore balance) to work correctly, the user prior has to calculate the standing order. Therefore for a test reading, you must enter the VIEW BANK ORDERS field before using the option.

Saving Your Files

We have now completed all the sections of the top arc, and we can now continue in the other five sections of the *Moore Memo*.

OPTION 2 This option saves your completed file to disk, using the filename that was specified for it in your P.I.N. file (it's also the filename that you confirmed in the opening questions to the Master Media see page 11).

Before saving your life because of the way your disk drive handles the information, such serious techniques, perhaps you had to have at least that way. The computer will check the automatically, and if any serious has been left empty, a well under a "MIL" and a value of 99.99.

Because of its composition, the Bank Order's action must be viewed in calculating the automatic return. Should you attempt to SAVE your file before saving "Bank Order", you'll be returned to the Miami Miami Order returning, view the Bank Order (pages 4, 5), and then return (pages 11 to 14 A-MENU).

If in doubt, view the Bankers' Orders before any option above it on the Money Menu.

Updating Your Files

This is a powerful account, and for updating your files after receipt of a bank statement from the bank holding the account that you are working on.

Section 1 The section works by

NAME: _____

DATE: _____

THE 12.5% _____

1. CHAIRS	2. CLOTHES	3. OTHERS
4. MORE CHAIRS	5. PAPER	6. OTHERS

7. NAME OF THE _____

8. NAME OF THE _____

9. NAME OF THE _____

10. NAME OF THE _____

enabling you to delete checks and other payments that appear on the bank's statement. By choosing how much money, at a time, you are able to delete items that are shown on the bank's statement, therefore leaving only the items not yet cleared by the bank. The end product is an up-to-date account, without hundreds of items not needed because they've already been cleared by the bank.

On entering the system, you will first be asked for the balance from the bottom of your 'current bank statement'.

That figure is the balance at the bottom of the statement; however, you have much to left in (or owed on) your account. On entering this figure it will be placed in the BALANCE column in the same row of "PAYMENTS TO THE BANK" (caption 5.2 of the master manual). Thus is the figure which showed 00.00 when we viewed the screen output.

On entering the figure for the **BALANCE** you will be taken automatically into the 'delete cheque' mode. You will notice that down the side of your screen is the numbering, from entry 1 to whatever amount of entries you have in your file.

To check the bank's statement, simply tap on the number which corresponds with the first cheque placed on the bank's statement and hit [RETURN]. You will note that the entry is now completely obscured by asterisks (* * * * *).

Continue in this way, until all the cheques shown the statement are blanked out in the same way. Now type in **[*] RBT138N** and the computer will delete all the cheques marked with the message.

Deleting the commands of your files (Clipboard, Office, Bank centers, and Payments) will also streamline the way you do as you did on the DELETE of 2005/11/18, note.

On completion of the final screen of the 'Updating Files' mode, you'll automatically be taken into the very mode of NAME ORDERS. End this mode as usual.

After using the Update Files option, the program is used exactly the same way as before, and each section can be saved or the file saved.

Please remember that if you save the file after updating, it will be saved "updated" and the previous file with all the extra items (that we do not need anymore) will then be deleted from your disk.

Changing Entries

Option 8 of the Master Menu enables you to change an entry if you make a mistake. If for example you incorrectly type in a cheque number on the (PRINT) menu of CHQPRINT, You simply continue through the page and you can exit (see page 4), return to the Master Menu, and then select option 7 where you can alter the cheque number to the correct number and then return to the Cheques mode to continue with the next entry.

OPTION 9 On choosing this option, you will see the CHANGE ENTRY MENU compares to change CHEQUES, CASHPOINT, OTHERS, and PAYMENTS You will notice that the other section, BANKERS ORDERS, is not visible.

that as humans all actions in this section are automatic, and therefore there should be no judgments.

Should you wish to delete an entry in any of these categories, (including Bankers Orders), you should use option 4, updating files. CHANGE ENTRIES is for changing, not deleting.

To change an entry made in the Cheques mode, you would use option 1 of the CHANGE ENTRY menu. Press the key [1] now. You will now be faced with the Cheques change mode menu. You'll see the words "ENTRY NO. 1" underneath which will be displayed your first entry from the CHECKS mode. If you wish to change this entry press [C], if not, you can scroll through the entries by pressing [] to scroll forward, and [] to scroll back.

Once you've chosen the entry you wish to change, and have pressed the [C] key to change, you'll be asked to input each detail again (date, cheque number, etc.) If for example the fault was in the 'cheque number' simply press [RETURN] to the other questions and they will remain unchanged. After changing the incorrect item, the display above will change to show the amended screen. You're now free to scroll through the other detail mistakes or to return to the Master Menu (this is done by pressing the [N] key).

To change CASHPOINT, OTHERS, AND PAYMENTS screen, you choose the relevant number in the Cheques Entry menu, (see above) and follow the exact same procedure as for Cheques (see above).

Printer Option

The printer option is the most important part of the Bankers programme, the part that actually prints out bank (bank)-statements of your account. The benefit of this is that your statements will always be more up-to-date than the bank's. If, for example, you cash a cheque on the 2nd of January, and you receive a bank statement from your bank on the 7th, the cheque will not be shown, therefore leaving you not thinking you have more money than you actually have! This is obviously not a good thing, so it leads to all sorts of problems.

Now you see, "but I keep a running balance in the side of my cheque book!" Yes, but do you account for standing orders, bankers charges, costs of, for example, a new cheque book that you ordered on the 2nd and it slipped your mind?

Of course, another way of checking

is to load up your Banker program and view through the screen options, (finishing with screen 4 (totals)). Well of course this is by far the safest way of doing things, but one thanks to option 6, the printer option, all you have to do is check your own, up to date bank statement.

Your bank statement is split up into the different categories, as is the programme, for easy viewing (see attached demonstration statement). The computer will automatically print the date, bank name, and your account title at the top of the statement. It will then print the date, item, cheque number, debit, and credit, for each screen in turn, concluding with the total expenditure, income, and balance, of your account to date.

To use this option press [8] on the Master Menu and you'll be asked to confirm that you want a printer statement (that is, if you had pressed the [8] by accident. Answer Y for yes, and you will be asked to ensure the printer is on. Check that the printer is on, and there is paper in it, and then hit any key. Your STATEMENT will now be printed. On completion of printing, you'll be returned to the Master Menu.

End Of Run

To end the program, use option 4, on the Master Menu. On pressing [4], you will be faced with a few 'half-check' questions, the first of which is checking that you didn't press 'A' accidentally, and therefore giving you the chance to return to the Master Menu as if nothing had happened. The remainder of these questions check that you have saved the file (option 7), and whether you wish to calculate another account (if you select this, you will be returned to the LOADER TITLE SCREEN waiting your P.I.N. Code). If you reply to this question that you do not wish to calculate another account, the computer will shut itself. Your computer is now ready to run any other program you wish to use.

Conclusion

We have now worked through each screen of the Master Menu, and by this stage you should be fairly conversant with the system. You should have entered all data from your account, you should have saved

them, you might have (or demonstrate purposes or otherwise), altered them, you might even have deleted some of them, you should have saved them as a file, and if you own a printer you will most probably have printed them out onto a statement. Now it's time to reload your file and update for add/lets.

We end, at this stage, rather completely reset the computer and reload Bankers, or simply, using option 'A', ask to view another account. Either way we will now end up with the Loader Title Screen in front of us.

Because we've already formed a P.I.N. Code, we don't have to enter a list of banking details about accounts and standing orders, we simply enter our P.I.N. Code and the computer will load it all as a matter of seconds. Please note that if you enter the P.I.N. Code incorrectly, the computer will reply with a 'FILE NOT FOUND' message and you'll be returned to the Loader Title Screen.

On successfully loading the P.I.N. file, you'll enter page again the questions page that precedes the Master Menu. Again all the answers are already placed in for you and all that remains is for you to hit [RETURN]. The only difference this time is that you must answer 'No' to the question 'ARE YOU OPENING THE FILE FOR THE FIRST TIME?'. Also, for the sake of demonstration, it might be a good idea to add a month or two in the Date Field just to watch the Bankers Orders field doing its stuff!

Because you entered "NO" to the "ARE YOU OPENING THE FILE FOR THE FIRST TIME?" question, you will note that on entering the Master Menu, there is a line between the screen's (loading, reading, -***** PLEASE WAIT LOADING FILES *****). This is because the computer is loading the 'old' file that you have just saved. Once this file has been loaded, the PLEASE WAIT LOADING FILES line will go and you will see a line in the top right-hand corner (reading - FILES IN MEMORY). You will of course have seen this before, as this has never even effect as well as any entry is made into any of the accounts.

You are now ready to add to, delete, change or printout any of the files. Remember to rename the file before "END OF RUNNING" and you've started to use the programme for your account.

Multi-Coloured List

*Brighten up your Basic Listings by adding some colour
with the handy routine
By Neil Higgins*

Do you know that it's possible to have your Basic program listing in different colours? For example, you could have half of your program listed in blue, and the other in white. But the main use I find is that you can highlight certain parts of your program such as subroutines, REM statements, messages or even the last part of the program you were working on!

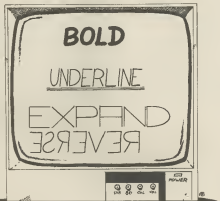
The routine given will allow you to do this with ease. It works by inserting a REM statement in any line you choose which holds a string of characters that actually changes the colour of your listing. To use the routine, first type it in, save it as far as you can, and then to add colour the routine is:

```
555 30075 LIST:NOT COLOR:G-13)
```

where LINE holds the line number and COLOR is one of the standard colour codes 0 to 7-15. If the line number shows already exists in your program, then the following message will appear: LINE EXISTS:CONTINUE Y/N. If you press the Y key, then the line will be replaced by a REM statement and your colour. If you press the N key, then the old line will be left intact. This is a safeguard so that you don't delete important lines by mistake.

As a list of people who don't understand the benefit of this program, I think you have a subroutine waiting at line 1000 and calling at line 2000. If you want to make this list in just the colour white, then you would use colour 0. 555 30075 000 1, in which case your listing would carry on in the colour white. But we only want the information to list in white, and the way around this is to include another REM to change the colour back to normal. Let's say, for simplicity this happened to be light blue. You would enter 555 30075 3001 14, which will return the colour after the subroutine back to light blue, which was our original colour. If you experiment with different colours, you'll soon find the line and then stand out.

PRINTFX



*This print effects package could bring your
Commodore screen to life!*

By Mark Everingham

As your Plus 4 screen boring you to death? Don't you wish you could inject some life and interest into your screen displays, something more than turning them into monochrome green colour as an attempt to catch the user's attention? Well, PRINTFX can save you from the boredom of computer boredom. Simply use the simple SYS command, and PRINTFX will change your Commodore-using life!

So, after all these extravagant claims that PRINTFX will change your life, what exactly does it do? Well essentially, it offers the Plus 4 user a variety of printing effects (or FX). These can be used to liven-up your boring screen displays, or for more serious applications for instance in enhancing the output of a dot-matrix printer for word-processing purposes. Printing effects implemented range from simple underlining to bold, italicized, underlined, vertically & horizontally flipped, double width, double height text rotated through 180 degrees about the text origin and displayed using an exclusive-or method. If you're struggling for breath after that sentence or wondering what on earth it meant, don't worry - PRINTFX adds 20 new commands to BASIC which make a simplicity itself to operate.

Using PRINTFX Commands

As I have just mentioned, PRINTFX is operated through a new set of 20 BASIC commands forming an extension to normal CBM BASIC. These commands work in exactly the same way as the normal BASIC commands and are fully supported with error messages and function-arguments. For example, the command TEXT prints some text on the screen and has the syntax shown below -

```
TEXT screen,ycoord,"text to be printed"
```

Usually you would use something like the command that follows to display some text

```
TEXT 10,0 "HELLO"
```

If however, you wish to print some text at a position defined by variables, or want to allow the user to specify

the text to be printed, this is no problem. For example

```
XC=10 YC=10 TEXT XC,YC,"HELLO"
```

This will print "HELLO" at the position (10,10) specified by the variables XC and YC. You could also use an expression such as that before to achieve the same effect

```
TEXT PA,PA,"HELLO"
```

No any numeric argument can be replaced with any expression which yields a numeric result. The same can be applied to strings

```
INPUT "WHAT IS YOUR NAME";  
NI  
TEXT SCREENHI+6)/2,10,  
"HELLO "+NI
```

As you can see, such arguments may be replaced with an expression or series of calculations which produce either a numeric or string argument, whichever is required. In this way it is possible to achieve some complex effects

PRINTFX Error Messages

Listed below are the error messages that PRINTFX gives and their relevant meanings.

"SYNTAX ERROR" - You have omitted one of the required arguments or used a phrase which PRINTFX and BASIC does not recognise as the correct

"ILLEGAL QUANTITY ERROR" One of the arguments you have used is outside the valid range for that argument. The appropriate range for each argument is shown on headings in the next section

"TYPE MISMATCH ERROR" You have replaced a numeric argument with a string argument, or vice-versa

The PRINTFX Commands

What follows is a list of all the PRINTFX commands, along with the syntax they take, the actions they perform and an example of the command's use

TEXT *screen* (*0-39*), *ycoord* (*0-14*), "text"

The TEXT command is used to perform the actual process of printing some text on the screen, subject to the special effects previously set up. Note that if you are using double-width text then the x-coordinate (*screen*) should lie in the range 0-39 and if using double-height text, the y-coordinate (*ycoord*) should lie in the range 0-39

The *screen* can be of any length, and the TEXT command will automatically wrap the text around the screen in the direction defined by the MOVING command

BOLD ON/OFF

The BOLD command is the first of the special effects commands and is used to switch on or off bold printing. The field typstyle, which is a sequence called "Emphasized" on Commodore printers, can be used for underlining or to emphasize in-text headings. It essentially widens every vertical line with a small character control. Like the other Effect commands, the BOLD command takes only one argument. ON or OFF is turn the effect On or Off respectively

```
Example BOLD ON TEXT 1,0,10,  
"BOLD TEXT" BOLD OFF
```

ITALIC ON/OFF

The ITALIC command is used to switch on or off the italic typstyle. This is usually used for placing emphasis on single words within the main body of text. Alternatively it may be used to highlight whole paragraph quotes, or to indicate that a phrase is of Latin origin. The typstyle is achieved by shifting the top half of each character one pixel to the right. The operation of the command is identical to the BOLD command

```
Example ITALIC ON TEXT 1,0,10,  
"DOLCE ET DECORUM EST"  
ITALIC OFF
```

UNDERLINE ON/OFF

The UNDERLINE command is used to select whether subsequent printing will be underlined or not. Underlining is used for headings, or as an alternative to italics for emphasis. The effect is achieved by simply adding a straight line to the base of each character

Example UNDERLINE ON TEXT 13,12, "UNDERLINED TEXT" UNDERLINE OFF

REVERSE ON/OFF

The **REVERSE** command produces a similar effect to the **RVS ON/OFF** control codes on the text screen in Commodore Basic. The style reverses each point of each character, producing a white or black effect if it is monochrome.

Example REVERSE ON TEXT 13,12, "REVERSED TEXT" REVERSE OFF

VTFLIP ON/OFF

The **VTFLIP** command alters the display of Vertically Flipping a point of text so that the top of the character appears at the bottom effectively turning it upside down. This can be useful if making a piece of text follow a shape on the screen.

Example VTFLIP ON TEXT 13,12 "UPSIDE-DOWN TEXT" VTFLIP OFF

HZFLIP ON/OFF

The **HZFLIP** command allows horizontally flipped text to be produced. This is similar to Vertical Flipping, except that it produces text which faces left rather than right, each point on the right being transferred to the left and vice-versa. The effect can be used when printing text from right to left as directed by the **MOVING** command.

Example HZFLIP ON TEXT 13,12, "BACKWARDS TEXT" HZFLIP OFF

TURN stage (0-3)

The **TURN** command is the last of the special effects commands which does not take a single ON/OFF argument, but instead a numeric argument in the stage 0-3. The command is used to turn or rotate a piece of text through an angle specified by the stage argument. The text is rotated about the centre of each character. The stage number 0-3 produces the following rotation -

Stage (0-3) : Rotation in Degrees (0-900)

0	000
1	090
2	180
3	270

Example TURN 1 TEXT 9,12, "TEXT ROTATED 90 DEGREES" TURN 0

WIDTH 4/3

The **WIDTH** command is my own personal favourite - it allows text to be printed twice the normal width with 30 characters per line. Even though only 30 characters fit on a line, these can start at any position 0-31. **PRINTFX** will take care of moving the cursor two characters instead of one, and will wrap text across lines correctly.

Example WIDTH 1 TEXT 3,12 "DOUBLE-WIDTH TEXT" WIDTH 0

HEIGHT 8/1

The **HEIGHT** command allows you to print text twice its normal height, with 12 lines of text fitting on the screen at a time. These lines can start at any line from y10 to y23 and **PRINTFX** automatically moves the cursor two lines when wrapping text across lines.

Example HEIGHT 1 TEXT 11, 11, "DOUBLE-HEIGHT TEXT" HEIGHT 0

Combining PRINTFX Special Effects

If you've been keeping count, you will have realised that 11 special effects have been mentioned in this article using **PRINTFX**. However, the real beauty of **PRINTFX** is the ability to mix different special effects. In this way, it's possible to obtain more than 4000 effects by the combination of the 11 basic styles of printing. Every single one of **PRINTFX**'s effects can be used together, even the double-width and double-height commands. An example of this is given below.

Example
HEIGHT 1 HEIGHT 1 ITALIC
ON BOLD ON
TEXT 1,1 "DOUBLE-WIDTH,
DOUBLE-HEIGHT, ITALICISED,
BOLDTEXT"
WIDTH 1 HEIGHT 0 ITALIC
OFF BOLD OFF

In fact, many more than 4000 effects are available.

ORDER 'MOVHTX'

It may not be very obvious, but the order in which **PRINTFX** carries out its special effects does in fact change the way a piece of text appears. The **ORDER** command can be used to change the order in which the special effects are carried out, although double-width and double-height is always performed last. The syntax of the **ORDER** command is a single string which must be seven characters in length, with each character representing a special effect. The default order is shown above, and the characters in the order string are in follow -

Character	Special Effect
B	Bold
I	Italic
U	Underline
V	Vertical Flip
H	Horizontal Flip
T	Turn (Rotation)
R	Reverse

As an example of the difference the **ORDER** command makes is shown below.

- 1 ORDER "BRIGHTN" BOLD ON REVERSE ON TEXT 1,1 "BOLD & REVERSED ORDER 1" BOLD OFF REVERSE OFF
- 2 ORDER "RBUVHT" BOLD ON REVERSE ON TEXT 1,1 "BOLD & REVERSED ORDER 2" BOLD OFF REVERSE OFF ORDER "BUVHTN"

Using the **ORDER** command, it is theoretically possible to produce literally thousands more different printing effects!

MODE STORE/PL0T/ERASE/ON-YEST

If you've used the Commodore BASIC CHAR command in the graphics mode, you will know that whenever it prints any text on the screen, everything under the text is erased completely. Most of the time this is fine, but sometimes you may want to fix some text over graphics or trace an area of graphics with some text to

produce a rubber-erased effect. PRINTX can print its text in four ways, and the MODE command is used to select which method is used. The four arguments and corresponding effects are listed below:

Syntax / Effect

MODE STORE	Erase everything under text before printing.
PLOT	Use the text as top of the graphics below.
ERASE	Erase each point that the text consists of, rubbing out the graphics only where the text occurs.
INVERT	Erase each point on the screen where the text is printed, or set pixels to black and vice versa.

Example: `CHAR 1,8,"*****"
MODE PLOT
TEXT 0,0,"THIS TEXT IS
OVERLAID USING PLOT"
MODE STORE`

As another interesting aspect of the INVERT mode, any text printed with the mode set to INVERT can be erased by repeating the text in the same position with the mode still set to INVERT. This effect is often used to create games to produce rapid on-screen movement.

EFFECT effect (0-255)

If you're using many special effects at one time, you may be wondering if there is a quicker method of setting up a special effect than using a string of BOLD, ITALIC, UNDERLINE, etc. commands, although there are very easy to use. If you've become familiar enough with PRINTX, you can set up any effect except TURN using an EFFECT command. The EFFECT command takes a number in the range 0-255 and the number line of effects the number represents. The number is built-up from eight independent numbers -

17	Underline
16	Reverse
5	Vertical Flip
4	Horizontal Flip
2	Double-Width
1	Double-Height

If you want an effect to be switched on, then you add the number to your accumulating total, or if not then insert a zero. For instance, if you wanted to set up Bold, Underline, Reversed text, the numbers you would use are -

`128 (Bold) + 64 (Italic) + 16 (Reverse)
= 208`

Therefore, the command to set this effect onto operations would be `EFFECT 208`. This short command replaces the originally longer `BOLD ON ITALIC ON REVERSE ON`. However, it is obviously not as easy to understand, and so the value of the individual effect commands should not be underlined.

Another interesting use of the EFFECT command is to produce a number of effects from a single FOR NEXT loop. A program to show 126 of PRINTX's special effects follows -

```
10 FOR E=0 TO 256  
20 EFFECT E  
30 TEXT 1,1,"EFFECT" + STR$(E)  
40 GOTO 85  
50 NEXT E
```

UPPERCASE & LOWERCASE

All the examples we've discussed so far have used the standard Commodore upper-case font, which is a limitation when you list out your Plus4. This font gives uppercase characters and shifted graphics characters such as the Space, Hash, Dollar and Club. There may be times when you want to use the lowercase characters on screen, which often both lower and upper-case characters and so is more suitable for casual applications. This is no problem - the LOWERCASE command allows you to do this. If you then want to use the upper-case character set, just type `UPPERCASE`.

Example:
`LOWERCASE TEXT 1,1,"Some
Very Uppr UPPER and lower-case"
UPPERCASE TEXT 1,8,"Some
Graphics S-A S-S S-Z S X"
S -> indicates the shifted character set key 7)`

RAMPANT SAAAA/AAAA & CMBFONT

In addition to using the standard Commodore fonts which are located in the ROM of your Plus 4, you may at some time prefer to use a character-set which you've created using a Character-Designer such as that found on the Your Commodore 128/160 C16 Special Program Disk.

Usually you can only print each home-made character in one style, but using PRINTX all of the thousands of styles can be applied to your own character-set, so you can even recreate those little yellow Papyrus characters you have designed! To tell PRINTX that you wish to use a font based on RAM (rather than the standard Commodore ROM font) the RAMPONT command is used. It takes as its syntax the address where the character-set is found. This address may be expressed either in hexadecimal, preceded by a "H" character, or in decimal.

For example, if you've designed a font contained in memory at 16000 Hex, you can choose to use it with the command `RAMPONT $1600`. Alternatively, if you have a character-set in memory at the address 64000, you could select it with either `RAMPONT $64000(Dec)` or `RAMPONT 64000(Decimal)`. (One point to be noted using a character-set designed by yourself, you can go back to using the standard Commodore font by reusing the CMBFONT command.)

MOVING LEFT/RIGHT/UP/DOWN

It may have occurred to you when using the TURN, HFLIP and VFLIP commands that it's sometimes a bit tedious to have text always printed from left to right in the conventional manner. If your text is facing towards the left, then it makes more sense to print text from right to left, or if the text is facing upwards, from bottom to top.

You can choose which way text is to be printed using the MOVING command, followed by the direction or which text should be printed. The direction should be one of LEFT, RIGHT, UP and DOWN, and each should be doubly preceded with an "M" for "Moving". The "M" is needed to avoid clashes with the LEFTS and RIGHTS functions of CBM BASIC. Whichever direction PRINTX is

Number	/	Effect
128		Bold
64		Italic

printing on, it automatically takes care of the wrapping of text from line to line, and if a TEXT command causes text to run off the screen, it simply wraps printing over on the last visible character.

Example: MOVING LEFT TEXT
 20.1. "PRINTING RIGHT TO LEFT" MOVING RIGHT

STANDARD

If you're using a large number of special effects at one time, when you come to turn them off again, this can mean up to a large number of **OFF**, **ITALIC OFF**, **UNDERLINE OFF** etc. Commands which are a bit of a waste of time when you want everything switched off. One solution is to use an **EFFECT** command, but this doesn't reset the **TURN** function or **Font** address. The answer is the **STANDARD** command which simply resets all **PRINTFX** functions to their standard default values. These settings are as follows:

Effect	Standard Setting
Bold	OFF
Italic	OFF
Underline	OFF
Reverse	OFF
Vertical Flip	OFF
Horizontal Flip	OFF
Turn (Rotation)	0
Width	0
Height	0
Order	"BIUWHT"
Font	COMPONT
	Uppercase

Example: **EFFECT 20TEXT 1.1**,
"PRINT FX" STAND:STD TEXT
 1.4 "STANDARD"

The FXHELP Command

When you're first using **PRINTFX**, as later when using the more advanced features, you may not be able to remember the exact name of some of **PRINTFX**'s 28 commands. In such a case, the solution is elementary: just type **FXHELP**. The **FXHELP** command gives you a list of the **PRINTFX** commands, as well as the relevant arguments they can take such as **OFF**, **STORE** or **LEFT**. This command should be of great help when getting to know **PRINTFX**.

USING COLOUR WITH PRINTFX TEXT

This concludes our summary of the **PRINTFX** commands. The next subject I would like to discuss is the use of colour when printing text using **PRINTFX**. This is simple to do, and the process is shown below. Text printed by **PRINTFX** is printed in the current background colour on the current background colour. These are set-up using the standard **RGB BASIC COLOR** command.

Example: Printing some text a medium red colour on a bright yellow background

COLOR 0,0,0
 (Set up Background colour)

COLOR 1,3,4
 (Set up Foreground colour)

TEXT 1.1 "THIS TEXT IS RED ON YELLOW"

Any one of the Plus/4's 255 colours may be used for both background and foreground colours.

Abbreviating PRINTFX Commands & Keywords

In the same way that you can lessen the amount of typing needed to enter a **BASIC** command in standard Commodore **BASIC** by using abbreviations, you can abbreviate all the **PRINTFX** commands and keywords such as **STORE** or **OFF**. The full and abbreviated forms of all **PRINTFX** words are shown below:

Getting PRINTFX "Up & Running"

The **PRINTFX** system is easy to install, and may be used by either Tape or Disk users. The process of putting the machine-code data into memory is simply a matter of loading and running the **BASIC** LOADER program (Listing 1). The program will inform you of any errors in the data as follows:

INVALID NUMBER IN LINE n
 One of the numbers in the specified line is outside the valid range of 0-255

CHECKSUM ERROR IN LINE n
 Each line of data contains a checksum, and this should be the sum of the other numbers in the line. This error indicates that either one of the data items in the line is incorrect, or the checksum number itself is wrong.

Once you get the message "**STORAGE COMPLETE DATA OK!! CORRECT**" follow the program's instructions to save a copy of the working code onto a disk or tape. You can then load **PRINTFX** by typing the following:-

LOAD "PRINTFX"
 (For Disk Users)
 or **LOAD "PRINTFX"**
 (For Tape Users)
RUN

A title message will appear at the top of the screen, and the **PRINTFX** commands will then be in operation. Because **PRINTFX** uses the high resolution graphics screen, any print-

Full	Abbreviated	Full	Abbreviated
BOLD	B Shift-0	STANDARD	
ITALIC	I Shift-T	EFFECT	E Shift-F
UNDERLINE	U Shift-N	MOVING	MO Shift-F
REVERSE	R Shift-E	TEXT	T Shift-E
VFLIP	V Shift-T	FXHELP	F Shift-X
HZFLIP	H Shift-X		
TURN	T Shift-U	OFF	O Shift-F
WIDTH	W Shift-I	STORE	S Shift-T
HEIGHT	H Shift-E	PLOT	P Shift-L
UPPERCASE	U Shift-P	ERASE	E Shift-R
LOWERCASE	L Shift-0	INVERT	I Shift-N
COMPONT	C Shift-B	HRIGHT	M Shift-R
RAMFONT	R Shift-A	MLEFT	M Shift-L
ORDER	O Shift-R	MUP	M Shift-U
MODE	M Shift-0	MDOWN	M Shift-D

ing program should take the following form -

```
GRAPHIC 1 (To clear the screen)
or GRAPHIC 2 (For a Split Screen)
TEXT ON... (Do your PRINTFX
printing)
GRAPHIC 0 (Select Text mode
again)
END (Return to BASIC
[Optional])
```

The GRAPHIC 1 gives a screen with graphics at the top and a small text window at the bottom. If you don't wish the screen to be cleared, omit the "1". Some interesting effects can also be generated using the multi-colour graphics mode. To achieve this, do GRAPHIC 1 or GRAPHIC 4.

CM Ovens cannot use PRINTFX because on a CM with PRINTFX installed there is usually 2 kbytes of free memory left. However, if you possess a CM with a maximum of 16k extra RAM expansion, you can use PRINTFX as it stands with no alterations.

THE PRINTFX Screen Editor

In order to let you play around with some of PRINTFX's special effects or to generate simple screen displays with the minimum of trouble, I have included a feature for a simple Screen Editor. Using this program you can use most of PRINTFX's special effects to quickly produce professional screen-displays. The process for getting this program running is shown below.

LOAD "PRINTFX"

(For Disk Users)

LOAD "PRINTFX"

(For Tape Users)

RUN

Type in the Screen Editor Program (Listing 2).

DRIVE "PRINTFX & EDITOR"

(For Disk Users)

SAVE "PRINTFX & EDITOR"

(For Tape Users)

RUN

Subsequently you can use the Screen Editor by loading & running PRINTFX then loading and running "PRINTFX & EDITOR".

Upon running, after the Title Screen has been displayed you can freely type text. The key-presses below have the special actions shown.

Key-press	Function
RETURN	Go to left of next line
DEL	Delete character to left of cursor
CTRL-B	Toggle Bold On, Off
CTRL-I	Toggle Italic On, Off
CTRL-U	Toggle Underline On, Off
CTRL-R	Toggle Reverse On, Off
CTRL-V	Toggle Vertical Flip On, Off
CTRL-H	Toggle Horizontal Flip On, Off
CTRL-W	Toggle Double Width On, Off
CTRL-L	Toggle Double-Height On, Off
CTRL-N	Increase Turn angle
CTRL-C	Toggle Upper/Lower case
CTRL-D	Select Default settings
HOME	Move to top-left corner of screen
CLEAR	Clear screen and move to top-left
LEFT	Move Cursor Left
RIGHT	Move Cursor Right
UP	Move Cursor Up
DOWN	Move Cursor Down
F&C	Abort Program
[F1]	Toggle Bold On, Off
[F2]	Toggle Italic On, Off
[F3]	Toggle Underline On, Off
[F4]	Toggle Reverse On, Off
[F5]	Toggle Double Width On, Off
[F6]	Toggle Double Height On, Off

Although the PRINTFX Screen Editor does not support colour or all of PRINTFX's functions, it's a good introduction to using PRINTFX, and

the elements in our PRINTFX for displaying our further programming. Below is a quick summary of every usage for each program.

Address	Usage
\$1004-\$17FF	PRINTFX Program & Data Area
\$10	X-Coordinate
\$14	Y-Coordinate
\$102-\$104	Auxiliary Screen Address
\$106-\$108	Character Address Pointer
\$51-\$58	Temporary Storage Locations
\$6B	Temporary Register Base
\$00E4	Font Base Address (MSB)
\$000A-\$000B	BASIC Token Evaluation
\$000C-\$000D	BASIC User Token Generation
\$000E-\$000F	Keyword Creation
\$0100-\$0111	User Token Preparation

Because it is meant to simple BASIC, it should be very easy to add whatever features you want to the program.

PRINTFX provided Locations

For the most advanced programmers, it may be helpful to know a few of

because PRINTFX involves the CHARSET routine and the screen flip-flop circuit, it is compatible with almost other C16 & Plus-4 add-ons (without DOS 3.1).

Well, I think that about wraps it up. PRINTFX without doubt has many screen applications, but remember that above all, it should be good fun!

Anti-Freeze

Protect yourself against pirates with this ingenious new program

By Neil Higgins



In past months I (Neil Higgins) have, like most other Commodore writers, been both both: many articles on the subject of program protection method, I've even written one myself! One thing they all had in common was that they only described the simple ways of protection, such as doubling the run stop key, detecting a hardware reset or even using a secret password to prevent access to a program. These methods worked well, but how can we protect ourselves against the former system now used on the latest state-of-the-art back-up cartridges? Well, in this article I will explain one way in which machine code programmers can defeat such systems.

The most common cartridge for the Commodore 64 at present have to be 'Action Replay', 'The Expert', 'Fast Cartridge' and 'Voyager Frame', all of which have a built-in freeze button which is supposed to be able to stop any program while it is running and make a back-up. If you have any of these, then stop now! I was only able to test my anti-freeze routine on two samples of these cartridges: namely the Fast Cartridge 2 and Action Replay MK 1, and in both cases it proved highly successful.

Eureka!

Before I explain how to use the anti-freeze, I will tell you how I first came across it. It all started when I was sitting around one day, wondering what my next project would be. Also, as I have spent during the last at my computer equipment, I noticed my Action Replay cartridge, and I had a hunch that, why not try and detect whenever the freeze button had been pressed? But where on earth would I start?

I decided not to try using non-standard cartridges or other equally problematic methods. I thought there would have to be at least one location, somewhere in memory that changes whenever that button is pressed. Some obvious memory locations to test were around the CIA chips from \$D000 to \$D06F and the stack from \$0100 to \$01FF - so after a slight bit of time around the CIA's without getting anywhere I concentrated on the stack area.

Since 'Action Replay' is supposed to have a system that forces the stack contents to shift, I decided to fill it with a random byte (I filled \$0100 to \$01FF with 55H) and then run a routine which would set the stack pointer. After countless attempts at guessing the location and checking the stack, I finally

set the stack pointer to 23, then again cleared the stack area and pressed the freeze button, having control the built-in monitor. I then noticed that location \$0100 had changed, and that my anti-freeze program was born.

Trying it out

The routine is given as a machine code listing which was written using the Macro Assembler, but it should be compatible with most other assemblers (you may just need to change the TAY periods to BTY). A hand loader is also given for those without assemblers. To test it on your cartridge, load it into memory and run it with 5755 4913. A message will appear asking you to press the freeze button, and after doing so you must return to it by using the 'RUN' option on your cartridge. If the test was successful, the message 'Success! You have just used the freeze button' will be displayed, at which point you can return to satisfy yourself that it works. If a crash on return then you would also call it successful, as it means a working back-up cannot be made.

Machine code's use of memory told there were remains out there, such as filling the whole of memory with random bytes, or even printing a silly message to try on your monitor. If you do add anti-freeze for your own programs, it's important to note that since the stack is reduced to 23, you are severely limited as to the number of saved instructions or BCOM routines you can call. Also, think your usage of the optimization PHA, as other words loop on one on the stack pointer.

The routine also works to use location \$0105, but this is also used by certain coin modules - such as the one at \$B000 which controls the contents of floating point accumulators. It is a strong warning at \$0105, so if you intend to use the BUSE, make sure you know what memory addresses are used or it could be disastrous.

As there are now versions of cartridges coming onto the market every few months, I can't tell you if anti-freeze would successfully work with them. I hope you will try it out yourselves, and if anyone out there has already got all the latest ones, then why not send in the results to 'Your Commodore' and demand they be put in the Mailbag for us all to see. Anyway, I hope anti-freeze helps develop your own programs to show out the pirates.

PaperClip Publisher

PaperClip Publisher offers professional results at a budget price.

By Tony Hetherington

PaperClip Publisher is the latest in a line of top quality but unexported WTP (Wish-Trip Publishing) packages that will allow DOS owners to create newsletters, magazine pages and even the ubiquitous flyers from the comfort of their keyboard.

As you have probably guessed by now these pages were created using the package that boasts some pedigrees as the names of three top software houses appear on its packaging. The program's authors included Batten (the company that produced the *PaperClip* word processor which appeared over here via the now defunct Aristocrat), Goldfish (producer of the *Amiga* WTP package) and Electronic Arts. Unfortunately, Electronic Arts has no plans to export *PaperClip Publisher* into the UK and so, once

again, DOS owners have to rely on the efforts of P S S L to provide the best in productivity software.

As you can see *PaperClip Publisher* allows you to mix text and graphics in a variety of styles that can produce some interesting results. You'll see that I've strayed from the normal *Four Commodore* style to show off some of them such as the drop shadows and shading.

This article has been written using *PaperClip*, which is only one of a handful of wordprocessors it supports, and then converted by the text converter utility before loading into the program's text editor. Bare in the editor you can add formatting commands such as moving that *overline* four *Commodore* appears at as written in italics. The text editor can be used to write all of your

text but it lacks the features such as spell checker, word processor, etc. The program includes a quadrant editor that can



handle up to 255 characters and a grid for headings, introductions, and picture captions.

Not surprisingly, there is a graphics editor which consists of a rudimentary graphics package through which you can create your own artwork and a more useful utility through which you can load a clip-art from *Newsroom*, *Transfer*, and the *Graphic* graphics package. *PageClip* includes its own clip-art library (which is used to illustrate the program) but it is useful to be able to use the artwork from other programs.

Once you have your text and graphics together on a work disk it's time to create some pages.

Pull down menus and dialogue boxes guide you through the page creation process and it's possible to go from a blank screen to printed page in under an hour. In fact, half of the well-written manual is dedicated to a step-by-step tutorial in which you create a sample page, defined text files.

The first stage is to define the format for your page or pages (if you want each page can have a different format) and determine the size of margins, the number of columns on the page and the size of the paper it will be printed on. Next you split the page into how many columns you will use the text and graphics.

Boxes are the working units of *PageClip* as they contain their own local conditions.



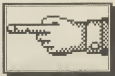
others to contain text and graphics as required. One powerful feature is the ability to link boxes; these can be either on the same page or on others, through which you can run two stories side by side on your frontpage and then continue it inside. It sounds simple but quite a few so-called "publishers" and packages don't have this feature.

Once the page layout is complete, you simply pour in the text and graphics by selecting the appropriate icon from a band of them on the left-hand side of the creation screen and select the file from a dialogue box. Then go and make a cup of tea as double would be a more appropriate description for the pace of this action. Eventually the text will be there and there's even a magnifying function to check it's in the right place if you've used anything less than 14 point text.

Finally, you use the quicktext option to add headlines, which can be quite a handy pointer to get them centred and then print out your masterpiece.

Comparisons will be made between this and *NewsPublisher* as I might as well join in. I found

PaperClip to be easier to use but limited in its access to outside word processing. *NewsPublisher* can grab text from any MS4 wordprocessor. Graphically, this one scores with its ability to use *Postscript* artwork and it can even use fonts from the GEOS



font packs. *PaperClip* is cheaper as you don't have to buy GEOS as well. On the minus side it is very slow when it's pouring text and printing out pages. On the plus side it offers more variety of fonts and point sizes than, for example, *PageMaker* (AMT) and would be the obvious choice for smattering *PaperClip* users.

Touchline:
Title: *PaperClip*
Publisher: *AppleLink*
Supplier: *AppleLink*
Region: *Internet*
Publisher: *News*
Price: *150* TEL:
0111 111 1111

9 h e a t a s t e w a d i e s t h e
 a g e a n d a t w i l e m a i n
 p r e s e n t e s t h e m a i n
 c o n t r i b u t i o n t o t h e
 c o m m u n i t y t h e m a i n
 h o u s e h o l d e r s h o u l d
 r e c o n s i d e r w h e n t h e
 t e x t w i l l b e
 a s s e s s e d a n d p r e s e n t e d
 i n N o r t h a m p t o n T a m e s



1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

I find them more useful
as they are going to be used
in the future.
I think you will find them
more useful than I do.

Category	Sub-category	Value
Total

...

There is also an additional option used to determine whether a box is transparent. This is used to overlap text on graphics or patterns to produce pattern interactions.

It would be tedious to have to define each and every box, particularly in a long document like this one. You can use a default box option to establish a norm and then only override exceptions.

Use of the word *box* as a heading as a box can be of any size. Once placed a box can be moved or resized at will with a few presses of the face button. For example, user *hnm* could be used to insert the heading, another for the *introduction* and

MIXING

Business

WITH

L, E, I, S, U, R, E,

WILL BE
A REAL

EDUCATION

Commodore computer show

Britain's brightest event for Commodore computer users is back! And there's more to see than ever before.

This show has three main themes: covering issues of the regular users to whom Commodore computers are put. There are over 30 key companies who will be exhibiting their latest products, which means that you can find out everything that's new in the Commodore world will be on show!

Business

Many companies will be demonstrating their latest software and hardware, specially designed to increase the full business potential of Commodore computers.

As well as products for the C64 and Amiga series you'll be able to try out applications for the pioneering Commodore PC compatible machines.

And you'll be able to attend seminars covering all aspects of using Commodore in your business.

Leisure

The C64 and Amiga computers are the most powerful 4 and 16 bit micros for producing top action demanding games. The range of new software is also a

Newest Exhibition Complex, Hammersmith, London W6

Friday to Sunday
June 2 to 4

Monday Entry & Security: Main Area: Sunday

will demonstrate how these machines generate beautifully realistic, producing action and even more addictive games with superb graphics.

If you're a keen game player, you'll find there's so much on offer at the show you're guaranteed a real treat!

Education

Commodore machines are now used in educational settings all over the country. With the development of BBC Basic Course Kits and the advent of C64 and Amiga, learning is fun and practical. The range of educational applications is endless.

At the show you'll see how the latest software

packages are making real breakthroughs in the educational sector and be able to try them out for yourself.

Special Events

As well as special events and presentations, you'll also be able to meet some of your favourite stars, stars, and maybe get a chance to talk with them about their life and their work.

So for a great day out, whether you want to see what the future holds for Commodore computers, to hear the latest software or to get ideas on specific applications, see the Commodore show. It's the place to go. And if you want to see the show today, we'll trade it off the price of each ticket.

For the first time we are offering a family ticket for just £17 allowing entry for two adults and two children - saving up to £7 off the usual entry price!

How To Get There

By Underground: Hammersmith (Piccadilly, District Line to Central)
By Bus: 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254
Or parking (subject to availability at the time)

Advanced ticket order

Commodore
computer show

POST TO: Commodore Show Tickets
PO Box 2, Hammersmith Post
South Bristol, W6 8JA

Please specify:

- ☐ Adults tickets at £8 (max 12) £ _____
☐ Junior tickets at £3 (max 12) £ _____
☐ Family tickets at £17 (max 12) £ _____

Total £ _____

- ☐ Cheque payable to: Commodore Exhibitions
☐ Please debit my account (credit card)

Every date _____

Additional tickets at show
£5 (max 12)
£1.00 (max 12)

Advanced ticket orders
must be received by
Wednesday, May 31

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Address _____

£ _____

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PHONE ORDERS: Ring Hammersmith 0181 551 0001

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WINDSOR, WINDSOR CO. 100 100 TOWN SQUARE

Please quote your order number and full postal code

APR 85

GAMES
UPDATE

Rocket Ranger



It's Saturday morning Christmas again, as *Rocket Ranger* takes us to the stars to defeat the Nazi hordes and rescue the brilliant Professor and his beautiful daughter. You've probably seen the series, you may even have read the book, so now play the game and become *Rocket Ranger*!

The game begins as your job in Fort Dix USA in 1940 - you're working on your latest invention when suddenly a rocket pack, ray gun and decoder wheel conveniently appear in front of you, warning that the Nazis have discovered a fuel source in Louisiana and are set not only to win the war but also to dominate the world for centuries. Instantly, you realise that the equipment has been sent from this potential oil source, and that you're the only one who can stop it coming true.

Things suddenly take a turn for the worse when a deadly Nazi Zeppelin lands and electromagnets kidnap the brilliant professor (Gus Bernstall) and his beautiful daughter Jane. You strap the rocket pack on your back and rush to the rescue. Before you get carried away this isn't a simple task: the hostile game, as it demands a combination of wrold skill and strategy.

The strategy element is controlled from the war room at Fort Dix, and involves issuing orders and receiving reports from your team of agents in occupied Europe. These agents can be ordered to either organise resistance to slow down the Nazi war machine or infiltrate Nazi command

and gather information about their deadly plans and the location of secret bases.

But what of the professor and Jane I hear you cry? Their fate will determine the effectiveness of the Nazi war machine. They plan to fly the information you to Germany, which will raise Nazi power from 30 to 75 per cent, and then (erect Jane with a mind machine) send the Professor agents to be moved to the base on the Moon, which will increase it to 90 per cent. This efficiency determines the rate of Nazi conquest, and the time you've got left to save the world.

Your first task is to organise your agents to find the location of rocket labs, bases and bomb factories, and then instate resistance to slow down the Nazi advance. While day's busy with that, you can fly off in pursuit of the Professor, which will lead you into either a quick attempt on a Zeppelin, a dogfight with a squadron of Me109's or a shoot-out with anti-aircraft (and anti-Rocket Ranger) guns depending on how long it took you to find them.

You then have to find and attack five Nazi rocket bases to steal parts to build your own ship (and plunder Louisiana to fuel it), before blazing off to the moon and a final battle with an army of Nazi Zombie Wines.

Unfortunately, your agents can be discovered and shot, rocket pack fuel is in short supply, and Nazi guards and Me109's aren't easy to beat, so the saving of the world will be a hectic struggle. However, once you've taken to the skies a bit more, you'll agree that this is best Commodore game yet. Forget *The Three Stooges*, *Defender of the Crown* and *Sinbad* - it's *Rocket Ranger* that'll save the day!

Timeline

Title: *Rocket Ranger* Supplier: Commodore (Micosoft)
Head-up: Winer, 00-73 Shoe Lane, London EC3P 4AB
Tel: 01-377 4545

WARLOCK'S QUEST



In the karma-rich universe where I write this, the one that rules the world is the universal divine justice and karma rule. Immortal Apocryphal powers have apparently had an off day, and the gods have been captured by no less a person than Mr. Where No One Is, Never Be Spoken. But who is this guy as the Lord of Nothingness? Whenever he is thought things look black, and know throughout the land have taken to trembling.

Now you aim to be involved in this little plot re-creation of life's great mysteries, but here you are charged with the recovery of the aforementioned trident and righting all the world's wrongs in one fell swoop.

Warlock's quest:
The main power
which rules the world
is and for trident etc. I
can find them."

The game is about killing monsters with your fastidious fire-spitting sword (how can you have a fastidious sword? It is called *Fluffy*, picking up treasures, potions, and other useful objects. Beware though: some of the items are cursed, which others simply kill you instantly. The powers are on two levels, and you can move between the two by the use of a series of pits, ladders and teleport.

The caves lead on different screens which are arranged in a stupid order, necessitating having to backtrack across the different loading zones. This is bad enough on disk, but I dread to think what it would be like on tape. A little more care in positioning some of the dread cards could have eliminated this problem entirely.

The graphics are detailed. A character screen filled with one, little characters. I had one graphics this was a few years ago. The birds draw by the graphics as detailed and very... that is correct, they actually make me laugh!

The top of the screen records your various status points as well as indestructible blobs representing the objects collected. There is also some sort of multiplier referring to your arrows, which goes up and down. How significant this is remains to be seen, as there is no mention of it in the instructions. All in all, this game is a mess. It would make a fair budget game, but at full price, forget it.

Timeline

Warlock's Quest: Supple: The International Price
\$69.95/\$49.95 (1990) (Sany)

THE MUNSTERS

Ongoing in the mid-Sevens, *The Munsters* have now become something of a cult thanks to repeats of the television series on Channel 4. A whole new generation has come to enjoy the exploits of Herman Munster, Eddie the dog, and Marilyn The Agony Agony software house has managed to create the rights for a computer game and, surprise surprise, the game is actually a reasonable representation of the TV series, unlike most games of film and TV shows.

The trouble with the *Munsters* is, that they are too new and so the David Karnell has decided that this must be taught a lesson. His monsters have kidnapped their Marilyn and I'll be honest, Herman has been revealed by a whole host of ghosts, phantoms and long-legged because all sorts on breathing very, some wrong.

The game starts with you in control of Ed, and your first task is to activate Grandpa and Herman. This involves collecting a series of objects, but they must be picked up in the correct order. Doing the objects also all but tracking throughout the house, and you'll also need to make a couple of visits to the graveyard.

There are two main types of monster: those that drain all your energy away, or control, and those that don't! Your problem is to find a way of killing off the nasty monsters in order to access different parts of the house and acquire the objects needed to progress further with your quest. It doesn't take long before you discover that you must fire ball of legs, numbers of halloween ghosts in order to have your spell power sufficiently to have a go at the big bangers. Naturally, attacking the halloween ghosts does not exactly make you in them, so then too must to drain away your present life-blood.

Once Grandpa has been activated, he must protect Herman while together they locate Eddie. Then it's off to the chateau where Marilyn is being held captive, but

Who Framed Roger Rabbit



The scene is Hollywood in 1947 and Roger Rabbit is in big trouble. Since he's a superstar Toon and works every day at the Maroon Camera Studios, he's just been framed for the murder of the cartoon Gog King Marvin. To make things worse, Marvin, who owned Toontown, promised to give it to the cops, but now out-of-control business has turned its evil head and the desperate Judge Doom looks set to crush it.

In a three-part game based on the movie but film you have to race to Benny's pub to the Ink and Paint Club find Marvin's real will, slug it out with a second and finally defeat Judge Doom to save Toontown.

Benny is a riskless cab driver, but your best bet is to reach the Ink and Paint Club before the Judge. The first part of the game is a race against time through the streets of Los Angeles which are full of traffic in both your progress a battle to avoid people of the Toon-dancing dip that will cost you one of your lives, and big ads for real which have a number of more phony ones. Luckily, Benny's car is no ordinary vehicle and can leap with an incredible suspension and even drive along the roof tops.

Eventually you will reach the Ink and Paint Club where you start run around the tables collecting the papers that the Penguin writers put out while avoiding the grip of the mafia boss. You have to collect all the papers because Marvin's will is written on one of them, but unfortunately it's an invisible ink. Papers are collected by running around the tables and pressing the fire button at the right time. If you mistake it you'll grab either nothing or a drink. Toons and drink don't mix and so you'll live a double dose as Roger Rabbit flips his hat under the temporary but dramatic effect of the drink.

The next ring takes you back into Benny's car for a last desperate dash to the Gog factory where all the cartoon

gags are made. These gags become your weapons as you try, and get the growing wheels to laugh themselves to death and so you wear glasses with spring eyes, throw perspiration between your ears with eating powder and make a quick escape through a portable hole.

Severe will save Toontown and mark the end of one of the most original games you'll play. It not only features some real cartooning but gameplay that actually does justice to the film.

Fourwheeler

Table: *Who Framed Roger Rabbit* Supplies: *Assault: Blair House* Minor: *Farm Road*, *Bringing Back* AG2
L337 Tel: (0141) 414000 Mochel: C84/126



ACTION SERVICE

Sometimes things go wrong. Sometimes they don't. Only the most expert of gamers can learn the trade and its secrets in the old, war-torn world of *Urban Command*.

The action is guided by barbed wire and armed soldiers, and houses the toughest assault course ever used. There are walls to climb, mines to handle, pipes to avoid, barbed-wire snare traps to avoid, enemy soldiers to fight in either armed hand-to-hand combat or with your trusty weapons.

All the time your progress is being monitored by the system, who makes things as difficult as possible for you, and who deducts points for the slightest mistake. For a real, intense action, you can only be tough in the proper way. In a word, soldiers cannot be shot as you'll lose ten points, which is disastrous as points are hard to earn. If the enemies are feeling particularly vicious they may even try to drop and die ten years ago as you were during the game.

The course can be attempted in four different ways, which determine the type of challenge you will face. They are play with a lot of crawling, risk-based runs and hand-to-hand combat (based on hand-lighting) or a mixture of them. Whichever one you choose it is a daunting task.

If you manage to complete the course then the game includes a very constructive, well-made you can build through a new challenge to set out for a friend.

Although the course is tough on everyone, and you have a difficult time of approaching it, it does become repetitive and would probably be better if it was just the first qualifying stage for a whole commando course, with assault and sabotage courses. As it is, it's little more than a trial and error course game.

Technical

Title: *Action Service* Supplier: *Logic (Delaysman)* Price: *Wheat Abbey Road, Epsom, Surrey, EPO 2BQ, Tel: 01 364 8121* *Macintosh: CSM-124 Power PC 95: Comshare: C14 RJ 664k*



Contributions

*So you own a Commodore? So you've
written some programs? So why haven't you
sent them to us?*

You Commodore is always on the look out for new programs, hints and tips, articles and even regular news. In fact, if you have something that you think could be of use to other Commodore owners we want to hear about it. So if you have got something which you think we may be interested in, how do you go about submitting it to us?

Below you will find a list of guidelines that will help us to deal with any item that you send us to us. We don't expect everybody to be the next William Shakespeare, but if you do follow these simple rules then it will make our job a lot easier.

1) If possible all material sent to the magazine should be typed or printed out on a computer printer.

2) All text should be double spaced, i.e. there should be a blank line between each line of text. You should also leave a margin of about 10 characters around the text.

3) On the very first page you should put the following:

Name of the article
Machine that it is for
Any notes required - disk, printer etc.
Your name
Your address
Your telephone number

4) The top of every page should have the following information on it:
Abbreviation of the article title
Your name
The page number

For example, suppose you had submitted an article on Commodore graphics. You should put something like the following at the head of the page:

Graphics/D Jones/1

5) Please make sure that you do not make any additional marks on your text, especially underlining.

6) If you need to use a draw command, English is often not hard to be a word of instruction but it must be comprehensible.

7) On the bottom of each page you should put the word ENDOS, if there are more pages to the article, ENDOS 2 etc. is the last page.

8) If possible, enclose a listing of all programs.

9) Under no circumstances are a single or hold the pages together. Use a paperclip instead.

10) Programs should be included on either disk or tape. Make sure that you SAVE two copies of every program so that we have a better chance of loading them if problems occur.

11) Programs under 30 lines can be included in the text. If your program is longer than this you must enclose a disk or cassette.

12) If your article needs any artwork, then supply other examples of what is needed. We don't expect you to be an artist but we do need to see what is required.

13) Photographs if necessary, must be either black and white prints, or colour slides. We can take them ourselves so don't worry about this too much.

14) Submissions of any length are welcome. If you find a few lines of text that you think may be of use to someone else we welcome it just as much as a full blown six part article.

15) Payment varies quite a lot, and depends on quite a number of factors, such as complexity of program, presentation of program, number of magazine pages it takes up etc. Payment is typically between £10.00 and £300.00.

16) All payments are made in the month that the magazine containing your article has appeared in print.

17) If we do find your submission suitable for inclusion in the magazine we will write to you giving the terms of publication, the rate of payment and an agreement form. Prompt return of this form will allow us to put your program in issue as soon as possible.

18) If you want the program returning to you, should we find it unsuitable for publication, then you should enclose a stamped self addressed envelope.

19) The last and most important point to make is "just writing". We are looking for your articles.

Aide de Comp

By Kerry Fowler

Add over 50 useful
toolkit commands
with the Super
Aide disk



If you made a list of all the commands that may be useful when writing a program, it would be surprising if it consisted of more than 50 items. Free Agent Software must have had a serious brainstorming session to squeeze every possible function into Super Aide. The really nice thing about it is that it principally looks under the ROMs, and doesn't interfere with Basic memory, at all.

Free Agent has its roots in the vast US Commodore User Groups, and this is reflected in the software by virtue of several public domain programs being included to run within and beside Super Aide. The program itself breaks down into several substantial parts: DOS commands programming, aid I/O functions, and a miscellaneous collection of functions.

Disk Commands

The DOS utility uses the conventional prefix of the `at` symbol followed by

the normal string command as used in the CBM standard PRINT command. To format a disk, the normal command would be replaced by

`BNF disk name, id`

A couple of extra commands have been added to the normal lexicon. A 'back' sign followed by a device number greater than eight will direct the computer's output to the corresponding disk device. There is also a 'T' command which performs a cross between the DUPLICATE and COPY commands, and is equally useful to the majority of users. Unfortunately, the COPY command only copies a program onto the same disk, but under a different filename, while DUPLICATE copies a whole disk on a twin drive system.

With the 'T' command, a single program is transferred from one disk to another, but only on a dual drive

system, and each of the second drive has a different drive number. All Commodore 128K series drives have a fixed drive number of 8, and it's only on the disk's 4080 twin drive units that a drive value 9 was used, so on most systems this feature is useless.

Apart from these minor niggles, the DOS commands work well and save a lot of unnecessary opening and closing of files. Many programs include these commands, even the free wedge supplied with the drives, so there is nothing really amazing about this feature, but it's handy for some sort of DCO to be included, and this is as good as one.

File Buddies

For loading and saving files there are no less than ten different commands. Using these a load address can be quickly retrieved from the disk, files can be loaded from the directory listing, and programs can be saved with the minimum of effort.

A sequential text file can be read to the computer screen or printed out using a prompt sign followed by the filename. This is the most useful feature, not just the command also works with program files showing lines to be grabbed and re-used whenever they may be needed.

Since if a directory is listed to the screen, the command can be placed beside the printed out directory, and when the RETURN key is pressed, the program loads to its correct location in memory.

When any of the I/O commands are used in conjunction with a directory display, the messages generated are all printed on the same line. This means that the actual loading process does not affect the appearance of any of the other directory entries, which helps any future loads from the same list.

Program Aids

Half a dozen essential commands are available for program development. These are all prefixed by an asterisk.

`AU` followed by the starting line number and the last instruction, inserts automatic line numbering. Each time a program line is entered, the next line number is the sequence is printed out and the source lines made ready for the new commands to be typed in.



When a program is being written that will communicate with a printer, it's often easier to write it so that the PRINT statements are directed to the screen. This can mean a laborious job of changing all of the commands to PRINT afterwards. Super Aide contains a CHANGE command which can make this job easier. That will search through a program for a given string and change each occurrence to the newly specified command. Similarly, a specific instruction can be found using the FI command.

The GO command allows blocks of lines and programs can be built up in modular form by using the APPEND command. This adds a program onto the end of an existing program in memory, and then a RUNNUMBER command will tidy up the line numbers and any line jump commands where necessary.

Amazing Miscellany

Up until now, all of the commands are useful but hardly earth-shattering and not really worth of the £14.95 price tag. A few hours with the relevant copies of FOUR COMMODORES and anyone could knock it up for their selves. For one the strength of this package lies in the miscellaneous commands covered by pressing the RESTORE key. When the key is pressed, the computer acknowledges that it is changing the border colour. Any keypress that follows performs a different function. All of these commands are summarised elsewhere, so the more variable instructions will be described here.

First and foremost is the special listing facility accessed with the upward pointing arrow. This is fantastic, because it makes it unnecessary to list programs. When the cursor is taken to the bottom of the screen, the

last line of the program scrolls into view and the scroll also works in reverse when the cursor is taken to the top of the screen. Being able to scroll back and forth through a listing makes debugging a lot easier.

Another debugging aid is a simple TRACE command which allows a program to be run at a preset speed. A small box at the top right of the screen shows the current line number and occasional being maintained, while the rest of the screen appears as it would if the program was running normally. Even if the fault occurs well into a program it can run at normal speed until the point just before the problem occurs and, because the RESTORE button works as an interrupt, the program can be halted with the key and the trace continued for fault finding.

At any point a program can be stopped and the current variable values listed out, the length of a stored program can be calculated, the start and end addresses, line resolution screen can be changed to the printer, and the numbers can be converted between any of the three common bases: decimal, hexadecimal or binary.

Whenever one of these RESTORE commands is called, the information is printed on the screen, but the original screen is retained when the function is terminated.

Designing a low resolution graphics screen is eased by one of the two optional programs which can be loaded with, and used from, the Super Aide program. Full editing facilities are allowed with this facility, and an existing screen can be loaded up with a low density graphics, or it can be designed from scratch.

Once the main screen is completed, a program to reproduce it is generated which calculates screen colours, other

was troublesome reversed themselves and upper and lower case selection. One thing it doesn't do is to replace the extreme bottom right corner character with a POKE to prevent screen scrolling when the line is printed.

The screen opened utility is the well-known XMON monitor which has been around in one form or another since the early PET days. This is a very good machine code monitor which not only allows the usual interrogative functions and disassembly but also has a memory store routine and location modifier which adds to its usefulness.

The wrap on the code is the walk facility, which allows the programmer to run a coded program one command at a time. At each line of code is executed, a printout of the current status of the processor registers, accumulators and stack trace are printed out alongside a disassembly of the next command for execution.

What's Up Doc?

The documentation is rudimentary to say the least. The manual consists of a printout of the help screen contained within Super Aide itself and therefore there is no constant page or index. This doesn't make it too so because familiar with the system. An example of the problems that this causes is with two extra programs which form basic code additions to the Super Aide program and deal at mainly with in an screen dumps to the printer and disk formatting. The manual mentions that a screen dump is on the disk, and general of the developer, eventually reveals the Electronic NON COM RE DUMP not a very friendly code.

The program menu shows that it

will dump images created with Kana's Beam, UltraBeam 64, Doodle or Koda Printer, which is all very fine if you own any of these programs - I don't! There is also a standard in-ram dump for other images, but there is no documentation as to why where the code part of the program lies so it is easy to overwrite the code routine by accident.

I've had the program for a couple of weeks, but I'm having how the dump works from some time and I initially assumed as converting files from my usual graphics packages (Ranstad's Advanced GCP Art Studio and CBL's Image System) to Koda format and printing out the resultant file. For a beginner without the resources of a good library, I'm afraid that this facility would be beyond them.

The disk display appears to use and perform adequately well. It allows access to be made from disk and displays them on the screen. As the cursor is moved along the screen bytes, a display at the lower part of the screen shows the screen character as a more meaningful numerical value and a few

words describe the function of the byte whether it be a screen pointer, filename character or just a humble data byte. Good though this utility is it will not seduce me away from my usual disk utility, but for those without any form of disk sector access, this is better than nothing.

My final gripe is that the Super Aide program uses the RESTORE key, which means that loading out with RUN, STOP and RESTORE is disabled. This can be a problem if the program loads up in UDG or binary mode, because you can neither read any error message or get out of the problem without resorting to the reset button or the C128 or the main store drastic power switch on the C64.

There is a screen way to get out of trouble if a system error occurs when using binary or UDG mode. Super Aide shows the function keys to be defined, so if a series of reset commands are stored on these keys, a few presses will solve the problem. It would be nice if key definitions could be saved, however, instead of having to reconfigure them at each power-up.

Conclusion

Despite its limits, Super Aide is a very powerful utility which greatly facilitates program development. Any features which aren't there (and there's not much missing) can be stored on the function keys.

The program utilities are all hidden away under the ROMs, but the lower screen editor is stored from #152, and the machine code monitor lies in the higher reaches of normal Basic memory. Fortunately, the programmers had the foresight to realise that a user may wish to use these locations, so the routines are offered as optional routines which may or may not be loaded at power-up.

I was very impressed with the range of commands which this package offers, and would certainly recommend it to any programmer.

Toolbox

Product: Super Aide **Price:** £14.95
Supplier: Personal Systems Software
Unit 10 High Street, Pocklington, Wiltshire BA10 1BG Tel: (01666) 333333
License: C64 or C128 in C64 mode, disk drive, printer (optional).

Super Aide Commands

Disk Wedge

- [0-15] direct commands to raw device
- 3 directory to screen
- C copy a file
- D duplicate disk
- I validate drive
- N format disk
- Q quit disk wedge
- R rename a file
- S delete a file
- T copy a file to a new drive
- V validate disk file

I/O Commands

- I in file to screen
- A display load address of file
- load a Basic file
- load a machine code file
- load and run Basic file
- save a Basic file

Toolbox Commands

- *A/I append to a file
- *AP append a file
- *CH search and replace
- *DE delete program lines
- *FI find a listing command
- *NI renumber a program

RESTORE Functions

- (press restore key followed by)
- A in-ram screen editor
- C change display address
(followed by C for text colour
B for background
E for border)
- D in-ram screen dump
- F define function keys
- H display help screen 1
- I watch I/O
- K reset computer
- L double space preview
(screen or printer)
- M enter ROM/IO 64
- N number conversion
aa prefix = decimal
b = hexadecimal
% = binary
- O printer auto off
- P printer auto on
- R toggle full key repeat
- S display length of disk file
- T trace on
- U display help screen 2
- V list variables and values
- X trace off
- Z save a relative file record
word reloaded
display from memory
locations of start of variables

Listings

Flowers and Vessels



1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.

1	000	FORWARDING TO FORWARDING
2	001	FORWARDING TO FORWARDING
3	002	FORWARDING TO FORWARDING
4	003	FORWARDING TO FORWARDING
5	004	FORWARDING TO FORWARDING
6	005	FORWARDING TO FORWARDING
7	006	FORWARDING TO FORWARDING
8	007	FORWARDING TO FORWARDING
9	008	FORWARDING TO FORWARDING
10	009	FORWARDING TO FORWARDING
11	010	FORWARDING TO FORWARDING
12	011	FORWARDING TO FORWARDING
13	012	FORWARDING TO FORWARDING
14	013	FORWARDING TO FORWARDING
15	014	FORWARDING TO FORWARDING
16	015	FORWARDING TO FORWARDING
17	016	FORWARDING TO FORWARDING
18	017	FORWARDING TO FORWARDING
19	018	FORWARDING TO FORWARDING
20	019	FORWARDING TO FORWARDING
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99	098	FORWARDING TO FORWARDING
100	099	FORWARDING TO FORWARDING

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Anti-Bias



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LISTINGS

[illegible][illegible]

Model-Consumed Time

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1	3000	0001	000000000000000000000000
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3	200	000	"
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100	100	000	"

[illegible]

Print the Label



LISTINGS

[illegible][illegible][illegible]

[illegible]

LISTINGS

[illegible]

Table 1

[illegible]

LISTINGS

[illegible][illegible]

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1999

[illegible]

[illegible][illegible]

Timeline Timeline

[illegible]

FIG. 6. The effect of the number of iterations (n) on the accuracy of the proposed algorithm.

[illegible]

THE COMMUNITARIAN ETHICS

LISTINGS

[illegible]

Join The Dots!

Twenty-four pin dot matrix printers have become a viable alternative to laser printing. But which one should you buy?

By Robin Burton

Only two or three years ago a serious question everybody was obliged to ask was: Is it Epson compatible? Nowadays, unless you're buying a more specific printer (or an odd one) you can largely fix yourself all printers conform to what is now the accepted standard.

Given the overall improvement in features and facilities you might think there's no longer much to choose between one model and the next. However, depending on the make and model, you can still spend two, three or even four times the money for essentially the same type of device to do the same job. So what do you get for your hard-earned money, and what justifies the higher price?

Of course no-one thinks the home user who occasionally hits a program, checks a screen or writes a letter needs the same printer as a business producing a couple of hundred receipts a day, or the school with a dozen marks showing things at a single network print at the same time. The fact is, though, no-one wants to spend more than necessary, and while business schools may have a larger budget than the home user, it's often more vital too.

Decision

Impressions conveyed by reviews are inevitably subjective, and while most try to provide a balanced view, remember that your opinion is the important one: reviews are merely pointers. For a large purchase like a printer, you should always see and compare several in your price range before you decide. Buying a printer is a serious business (at least it is, not a trinket you can be careless).

Separate the vital features from those that would be a bonus. If you have a very special application, you might need to take advice from dealer and ask to see the results from your job. If the dealer is keen on service as well as price, he won't mind if you buy from a 'thin dealer' you may save money, but find that you pay for a so lack of support later. Bear in mind that most of us will expect our printer to last for years.

While evaluating these printers, it occurred to me that many potential buyers would have been sure pin were for perhaps several years, and might be unaware of features that are standard for 24-pin machines. A large proportion of these features are quite beyond the capabilities of even the most expensive non-pin models of just

a few years ago. Before moving on to the individual reports perhaps a brief education is appropriate, especially if you're unfamiliar with current printer capabilities and trends.

Orientation

The most obvious additional feature of most current printers is the provision of several LQ font styles, usually with the ability to add more. In addition, many of the combined print-made instructions which apply to older printers (for example the inability to use condensed and like mode together) no longer apply. In simple terms current printers have more sophisticated internal software. That is because some have moved to 32-bit processors, whereas older printers used eight-bit controllers.

Buffer sizes are more generous these days too, because RAM is cheaper and those of the four here are typical. Virtually all current 24-pin printers also have commands for left, right and full-text justification, setting a line of text and tabbing to a specified absolute position, regardless of the current font or pitch.

The number of pitches too is increased, 10, 12 and 15 being standard, with expanded and

continued modes on top of those, plus the ability to vary inter-character spacing for all of them. Usually, additional effects can also be created like under or shadow print, and now can print at double height as well. You can usually run any of these but condensed 15 pitch sets possible. Whether your printer-oriented software can handle all these print mode combinations and effects is of course a separate question, and one that should also be considered if you expect to be able to take advantage of all the new features.

I find that one other issue has been credited with more than it deserves by some write-ups: grade feed systems are undoubtedly capable of more flexible and consistent operation, but desirable though it is, paper feeding has nothing to do with reducing paper waste. If printing must start right from the top of a new page, it is always done for daily formatted pages; it doesn't matter whether your printer's tractor feeds or pulls. Contrary to suggestions, the feed method system accommodates this need.

The only mistake is to leave the last printed sheet attached until you start printing the next. Really the truth is that most users waste the convenience of most status paper, but actually print only one or two sheets at a time. If you print continuously the problem doesn't exist, but if you don't, the only perfect solution is a printer that moves the paper up for tear-off, then moves it back ready for the further output. Such devices do exist, but not usually at the cost of prices most of us would want to bear about.

Evaluation

One area where subjectivity can be diminished is the speed at which a printer performs. The results for our simulations are compared in the table that follows. The tests were carried out under identical conditions.

The test consisted of exactly 5000 lines of the review, printed at Courier at 10cps by all the printers. This included a page throw with a one-inch top and bottom margin, blank lines between paragraphs, but no headings. It produced one and-a-half pages of typical text on standard 11-inch paper at six lines per inch. I haven't quoted manufacturers' figures because they have little or nothing to do with reality, and they don't all seem to use the same magical formula for calculation anyway.

As an aside, I've often wondered why there's an ESI test for printers, or why performance claims are not subject to the Rule of Goodies. As I've said this particular test is my honest ever since testing my trusty FX80 many years ago. I found it couldn't even print space at anything close to its claimed speed (and in fairness the FX80 was a lot slower than many others). The figures here are real and you can expect to achieve them yourself.

Samples of print are also illustrated to show some of the styles but no picture reproduction, however good, puts a limit on the validity of the test for personal judgement. Again, always see (and hear) the real thing yourself before you make your mind up.

Two of the models, the LC24-10 and the LQ-580 are at the lower end of the 24-pin price range, and start compare head-on at the hardware market. The line towards the end of the range is intended to reflect the nature of the majority of models.

On the other hand, if you've ever wondered what higher priced printers have to offer, the ones that your dealer doesn't stock and other magazines don't review) read on and be enlightened.

Star LC24-10 Multi-font

The first thing to strike me as I unpacked the LC24-10 is how extremely neat and tidy it is. There are no bits and pieces sticking out, and few to stick in. Preparation for me involved installing the ribbon cartridge, pushing the carriage knob on and plugging in. Unlike most printers, the main lead isn't exposed, it's permanently wired in and has a provided-on plug. This is very convenient but the lead could be a little longer, especially since it's not so simple to change to a longer one.

Setting it up

The interface is Centronics (parallel) and the lead plugs in at the rear of the right side out of the way of paper.

Although not a problem for most users, it appears that there is no serial interface, nor any other options.

The ribbon cartridge is the compact type which rotates with the print-head, and a couldn't be easier to fit. Lift the top cover, place the cartridge in position and push it down so need to touch the ribbon, as no ink, figure 1. Installation is so easy I seriously wondered and replaced it twice just to make sure it wasn't a fluke!

The LC24-10 also handles cut-sheet paper, for which a separate paper guide slots into place when needed. Apart from the A5 worksheet 110 pages seemed there was nothing else in the box—a good start! Convenience quickly seems to be on the right side of elegant. Neither the printer's case nor its top cover suggest flimsy construction as the need for over-enthusiastic handling, and I wouldn't expect long-term durability of the lookable but to be a problem.

Control of the pre-set options uses the familiar dip-switches and there are also controls for lifting the top cover. You don't need to detach the printer on paper to alter them, nor do you have to be a mathematician, but they are a little smaller and therefore more fiddly than some. Setting the options is explained clearly in a questionnaire-answer style in the manual, and on LC24 series should be baffled by these (except for the pins below).

The manual is quite well laid out, with ASCII, decimal and hexadecimal modes shown for each command. There's a reasonable index and a complete command list but in ASCII code order, which is fine if you already know the code that you're looking for! I was surprised that there was no separate quick reference card, nor in there a list of commands grouped by function. As a result, finding a particular command usually involved diving into the index, a major but not annoying, the poverty of which some were off.

On the front of the printer, at the left is the main power switch and at the right a slot for either a replaceable font cartridge or a RAM card. If you use this for additional fonts, each card provides an additional style, but the manual contains no information on what these are. Alternatively you can plug in a battery-backed RAM card which expands the printer's standard 76 buffers, though again the manual doesn't say for how much.

Specification

The LC34-10 provides, both Epson LQ-880 and IBM Proprinter X24 emulations, giving the usual 96 ASCII characters, or 244 in IBM mode including graphics. Features: optional character sets are standard for

From an initial check of the print specifications and paper handling, I rapidly learned the experience that this printer was thoughtfully and comprehensively designed from the beginning. Happily this was confirmed when testing began. Star seems to have managed to combine obvious style with usability—practical operation and a remarkable range of print features.

Print fonts are provided as standard, with ratios available for all of them. Other effects include outline, shadow, double width, double height, triple width and double or quadruple.

One note which sometimes causes problems for 24 pin printers is vertical paper movement when used with existing software designed for 9 pin printers, but it's no problem for the LC34-10. Vertical spacing can be controlled as either 18 dots for 24 pin software, or 114 dots for nine pin compatibility as you please.

Another notable event is that vertical spacing can also be controlled at twice the normal 24 pin resolution. This means that, both vertically and horizontally, you can produce dots at 360 per inch, a higher density than most laser printers, although the LC34's individual dots are obviously larger.

Using the Star

Continuous paper feeds through a slot in the back of the printer and is controlled by a push-feed tractor. When the paper runs out, a small portion of the rear of the case lifts off to make loading very simple. The rest of the time there's no need to remove the paper cover for a change in roll sheet operation. Press a couple of buttons and the paper automatically parks out of the way, but not engaged by the sprockets. When the paper release lever is in alternate position and out sheet can be used.

Cut sheet loading is also semi-automatic. Drop paper in the guide, pull the feed lever forward and the paper is fed through leaving a neat edge prep margin. Put the feed rod back and start printing. To resume end-to-end printing is also easy. Move the paper release lever back, pull the feed rod lever and the continuous paper

feeds through again. Then let the feed rod lever go and start printing. It's actually more difficult to describe than do.

On the top of the front of the printer there are four membrane-covered micro-switches. Whether you like membrane switches or not is personal taste. I don't like them on the LC34-10 do operate with a satisfying click so at least you can be sure of what you're doing.

One of three switches is on off line and with the other three in various combinations all five font styles with or without ratios and as 10, 12, 15, 17 and 30 cps can be selected. Two of the modules, if pressed at power-up, can also prevent either the logo-stroke and/or the pitch from being subsequently altered by software. The usual line feed, form feed, self test and test group functions are also provided by these switches. All this initially sounds potentially confusing, but after a minute or two it becomes quite clear.

Printing was begun about an inch of the top of a page, and for continuous paper the warning when you tear off is about an inch and a half. The tear-off cutting edge would be better if it were serrated. I found it necessary to take note if a manuscript's margin was not to be achieved. Print quality was good for all the LQ fonts, which (naturally) compared to the 90-13000's. I must say I wasn't very impressed by the double font though. Indefinite is the most I can say about it.

Other 24 pin printers would 'hasten' their equal speed nine pin drivers, (more pins? more noise) but the LC's seven lines seemed about average, and was quite acceptable. Unlike some printers, the quality of the sheet didn't affect the result too obviously as emanating from a 24 pin device, but like most printers, you wouldn't want to stand next to it when making a phone call.

The LC34-10 proved 100% reliable throughout the test and performed precisely to specification.

Conclusion

The LC34-10 is an excellent designed and very fast, compact printer. It has extremely practical, easy to use features, together with an unusually wide range of fonts, print effects and sizes. Eleven out of ten for effort, Star it shows.

The recommended retail price is £399. Extra font cards are £49 and RAM cards are £39 (all plus VAT, giving £453.03, £345.03 and £423.03 respectively).

After a quick run through current magazines, I found the LC34-10 advertised at around £289 plus VAT. At this price, value for money isn't a question. If you are buying an 80 column printer, the LC34-10 MUST be high on your short-list.

Epson LQ-500

The first job after receiving the LQ-500 from its box was to measure it. I was surprised that it's slightly smaller in width and depth than the Star, the square styling and greater height are noticeable. The height is because the top-mounted tractor and its cover are also visible. The ribbon, paper feed knobs and main feed are the only other fittings visible immediately.

Setting it up

However, there is a bit more left to do than the manual and a cut sheet guide at this stage. The manual find it separate from the printer and gettings importantly it's larger than the Star's. A parallel interface is standard but again in contrast to the Star, the 280 page manual lists three alternative serial interfaces, two IEEE interfaces and two serials, RS2 and RS232, for both parallel and serial connections.

The interface load plugs in at the rear as does the power lead, and one of the extra bits in the box is the paper rest, an extension to the back of the printer so that continuous paper can be kept clear of the heads. The ribbon cartridge is full width and fits to the printer chassis, not the push-feed fitting was quite straightforward, but it's necessary to remove the ribbon with a pencil, figure or something similar. As the manual suggests, it's easier if the pen or lead is moved to the center to do this. The remaining parts consist of the cut sheet paper guide

and an top cover.

Quality of construction is very good: the case and back covers are distinctly robust. I noticed as I unpacked the printer that there was no bad-rust. Quite rarely, Epson have disposed with this and built directly into the acrylic covers to keep the paper against the platen, while at the same time increasing the strength of the covers.

Between the platen is top-mounted the maximum distance from the top of a sheet to the first print line is about 1.75 inches. Also there's no top-off feature with the tractor unit except the perforations on the paper. To remove a printed sheet simply covers the loss of about half a page unless you used the paper lock.

The LQ-800's depriorities are located under a removable cover on the right of the printer towards the rear. They're easy to reach and nothing will be disturbed as to do so. Control of all the usual features is provided, and the manual too adopts a question and answer system to help setting up (but we also the self test feature below).

I altered two switches from the factory delivered user, one to select 11 instead of 12 pitch paper, the other to enable the 16 pin buffer rather than download data. The manual doesn't give information on downloadable capacity. One of four extra lines can be added by inserting a dot carriage next to the dip switch, one of eight under the same cover.

The first 30 pages of the manual contain a thorough guide to setting up followed by another 30 pages on general use and trouble-shooting, so even first time users should have few problems. Command codes are given in ASCII, decimal and hexadecimal form with direct keyboard reference (as where possible). Each command is also accompanied by a previous explanation where necessary.

The manual's contents list a rather more thorough than the user's, and there's also a glossary of terms, as well as a few notes. Commands are summarized both by name and task, which, with the run-out quick reference card, ensures that looking up unfamiliar or seldom used commands is easy.

Specification

The LQ-800 is of course Epson compatible, and the IBM Model 80

plus characters between ASCII 128 and 255 are included together with extended and Greek characters and some status symbols. IBM emulation is not supported. The manual acknowledges this and offers some suggestions for setting up DOS software, but while most recent DOS software seems for Epson printers, old software may not. In this case the bottom line is you may have trouble. 12 individual characters sets are supported.

Three fonts are provided as standard, each of course with strike versions. Additional effects are various shadows, double width and double height. All fonts are available in 10, 12 and 15 pitch, and all can be condensed except 15 pitch. Vertical spacing is controlled by 18 bits of an 8000, while the maximum horizontal movement is 17000.

Using the Epson

Continuous paper feeds over the back of the printer, and must be pushed round the platen and on to the sprocket by hand. The process isn't as fiddly as it sounds but once a change to not sheet means removing both the paper and the tractor unit, it's not as well.

Both the tractor and its top cover are simple to remove, and the paper guide covers are as easy to fit, but it's not the sort of job you'd want to do every few minutes. Whether this is a problem to you only you can decide, but I suspect that as practice the average user doesn't actually change between very often. Loading cut sheet paper is less awkward. Drop in sheet on the guide and with the printer well locked, press the top-feed button and the paper feeds through in set sheet mode, pressing the form-feed button gets the printed sheet when you reach the bottom.

On the top at the right side of the printer are three buttons - the one on the left is an off line, and the other two provide all manual control. With the printer locked, repeated pressing of the form-feed button cycles through the available fonts, including the one provided by the controller of host. Pitches can't be changed by these buttons but must be pre-selected by dip-switch or altered by software.

Line feed, form feed, self test and line dump are also provided by three buttons but the self test has an excellent extra in addition to halting

its obvious function, all the dip-switch configuration options are printed, with the current address highlighted by an emulated print, so even if you aren't confident about setting dip-switches, checking what you've done is done for you. A nice touch.

Print quality, was good - the standard 'Roman' font (equivalent to Epson, I believe) looks particularly clear and clear. Using 10 pitch Courier (provided by controller) for a direct comparison, the LQ-800's print seemed to me slightly clearer than the LC34's, with, for example, the letter 'b' a fraction larger for a rounder. It's truly if there's any difference it's not much so I asked my wife to compare a page of each (without any other information) and she could see no difference between them. This is obviously an odd claim subjectively stops anyone, so judge for yourself.

One item where the LQ did have a definite edge was in draft mode. Draft on the LC34, though quite legible, was inferior. This probably explains the LC's slight 'catching up' in the draft speed test compared to LQ (see table). 12 pages that is the maximum of ribbon life and print speed means home users would opt for a draft mode most of the time, so don't underestimate the importance of this matter were you compare them. The LQ's draft was much more a real typeface and I found it more pleasant to read.

The noise level from the LQ-800 was OK, certainly no more than the LC34's. Given that, at least on my test, the LQ's draft print was about 40% faster and better quality I'd have to say the LC34 would reasonably expect a little more noise. The fact that there isn't might reflect the LQ's slightly heavier construction.

The LQ performed faultlessly throughout the test.

Conclusion

The LQ-800 is Epson's home-of-the-range 24 pin printer. It is very reliable, fast and simple to use, though the paper handling distinctly shows its age. That might be unacceptable if you image stationary frequently. While not providing such a range of fonts and controls as the LC34-18, all the standard 24 pin features are present, and there would be quite adequate for most users.

In some areas the LQ-500 has the edge. For special applications needs there is a wide range of interface options. If output speed and draft quality are important factors, the LQ-500 might be preferred.

The recommended retail price is \$299, and extra fast cards are \$35, \$64.95 and \$69.75 including VAT.

Again checking recent magazines produced a different story, and I found the LQ-500 frequently advertised for about £11 to £15 less than the LC34-10.



Citizen HQP45:

The HQP-45 is a wide carriage printer, so the first job was to make space for it. The remaining contents of the box were the manual, the ribbon and two manuals.

Setting it up

Both the paper feed knob and the cut sheet guide are already fitted. After the second cover and the paper cutter have been removed (both smoked any/cut top covers) manual feeding was removed from the print-head and the full-width ribbon (all 18 inches of it) was fitted.

Surprisingly, Citizen haven't opted for a compact cartridge for a printer of this width. I found fitting slightly awkward, both because of its size and because full-width ribbons tend to be more awkward anyway. The manual is separate and plugs in at the rear of the printer, so does the parallel interface cable. A serial interface cable provided as standard, and this is on the right side towards the rear. No other interfaces or buffers are listed.

The HQP45's styling is very individual and quite elegant. I'm not sure why, but I couldn't help thinking that it would look good through a high street window's glass. At the same time I also thought the sharp corners were not with a good idea. They might be painful if you knocked your hand on them, and they might get damaged if something solid were to bang into them.

Neither the printer's case nor the

covers inspired impressions of durability, made worse, no doubt, by their large size. I always felt a need to take care when lifting or replacing the covers. To be honest, I can't imagine them lasting very long in a school or similar environment.

As a guide to the impedance I checked, and wasn't very surprised to find the HQP at 16.5 pounds weighed only a pound more than the much smaller (80-column) LQ-500 and more than eight pounds less than the wide carriage HQ 3500. I know that you don't buy printers by the pound, but this must be a message here.

On the front, at the right are four push-switches to control manual operation, and immediately below them is a drop-down flag which conceals the dip-switches. In this position they are very easy to reach and nothing needs detaching. Control of all the small spaces is provided, but nowhere. Citizens have managed to cram them over four heads of sight.

Slide switch. It's certainly a record in my book.

Back there is usually concerned with the serial interface, but I will expect to see less of some options.

There isn't any. There is more confusion though. First, which manual? Reference Manual? Wrong, the User's Guide. As to the switches, in the manual switch 1.2 is explained as Automatic Line Feed by CR mode with options. Yes No (switch 2-3 is shown as Automatic CR) with options. Yes No. If that hasn't worked you switch 1-6 is labelled Automatic Line Feed by full column with options CR-LF/CR only.

There are other examples. Switch 1.1 is 'Upper case/line off' but a note for bank four says 'When SW1-8 off, Upper Configuration' and while switch 4-1 to 4-3 select international character sets 4-4 really selects 'Scandinavian Character Set' (I checked now) I was. There is a 'maintenance self-test' which prints out the settings, but it only shows a 1 or a 0 to show if a switch is on or off (it's within the LQ-500, which interprets the settings for you in English and shows the other options too).

I'm supposed to know something about printers, but it took me two attempts to see the printer's line feed off. Keeping a sense of proportion, this is surely a case off job, but while the manual is clearly laid out, it then seems it just doesn't explain itself. As a first job and the introduction to the HQP-45, it wasn't very encouraging.

It turns out that the Reference Manual (80+ pages) contains the software commands, while the User's Guide (80 pages) is everything else including options, home, character set, page examples and the quick reference card. More things are quite well laid out and with good explanations (except for the lack of detailed command codes and the dip switch section) but splitting the material into two manuals is a mistake and the users don't help.

It seems the information was more or less on the 'other' manual (and of course you can't find it). It's a nice idea but it doesn't work. The problem is aggravated by the fact that, in both manuals, although all the subpages are listed on the contents pages, only the first page number of each chapter

is shown. Even when you find the right character, you must still hunt through it. I thought perhaps I was being choosy, but other reviewers have had the same problem.

One complaint because is the HQP's unusually large print buffer of 34K, and this can be split into 16K for downloaded definitions and still leave an 18K print buffer first-queue. The manual doesn't give download capacity in either mode.

One extra font can be added by means of a font card which slots in under a cover on the right to the rear of the machine. The manual doesn't show what other fonts are available. A second slot is provided for an emulation card giving software compatibility with Diablo or Quartz printers, or an IBM Proprinter. Other emulations are implied, but not specified.

A 144-page addendum sheet was included with the User's Guide. This contained many corrections and additions (some quite significant so really there were three places to look), and three more pages of notes, doubling its size. I had already thought that the manual was a 'wobbly job' and this confirmed it. It isn't good enough when you're spending several hundred pounds.

Specification

The HQP-43 is Epson LQ-1000 compatible, but in standard mode of the IBM graphics, Greek or accented characters or math symbols are included. Many national character sets are provided.

Control is via a dot font. Font sets are necessary if additional styles are required, but only one can be used at a time. Features of course included, and LQ, draft and 'variable-resolution quality' (halfway between draft and LQ) are available. Followed print effects are reverse print, as shallow as about 12 points only, and double height. Neither of these are the standard Epson commands, but neither have unusual 'Citizen Escape sequences'.

The usual 10, 12 and 15 pitch are provided, and both 10 and 12 pitch can be condensed. Vertical spacing is controlled in 100ths of an inch, horizontal movement in 16ths.

Using the Citizen

Continuous paper is fed by a push tractor, but paper parking isn't pro-

vided, and isn't possible manually either, because the tension drive isn't disengaged. A paper cutter allows short-run off. Use of continuous paper is very awkward unless the cut sheet paper guide is removed, because it hinders the sprockets for loading and also gets in the way of the paper coming out again.

Snapping to cut-sheet paper isn't very convenient either. The second cover must be removed and put aside, the paper guide then lifts up from the rear and locks in position. In theory that's it, and loading cut sheets is uncomplicated. Plus a sheet in the guide and the printer feeds it through, triggered by a sensor switch to prevent the sheet is often 'grabbed' before paper is ready and before it's quite straight, with the result that several attempts might be needed.

When the paper does go in straight, the vertical position isn't constant to within half an inch, so manual adjustment is also needed (Even the User's Guide says adjust 'if necessary'). Unfortunately the remaining tip over, the paper cover, must now also be removed as you can see the paper to make the adjustment. The manual only lets you in for the full blast of the HQP's noise, which is considerable.

On the front of the printer are four buttons. The right one is on/off line, and the other three provide manual control. Second from right is the line-feed/free-feed, the third selects between the fonts (if fitted as extras) while the left button cycles the options of draft, correspondence quality, letter quality and proportional.

To the left of this are LEDs confirming the current selection, but the difference between these runs sufficient and light spill from one to the next. The separate paper use light shows continuously, so until you get used to them these aren't very helpful. Line feed, form feed, self-test and line dump are also provided by the buttons.

Print quality was acceptable for letter quality, or draft, but was not thought to be as good as the LQ-300's by anyone I showed sample to. The one real 'what purpose 'variable-resolution quality' serves. It's little better than draft, certainly not good enough for correspondence, and seems rather expensive. I think higher quality draft mode would be an accurate description.

Noise levels from the HQP-43 were totally unacceptable. It was unplea-

santly loud with both covers in place, but when used for cut sheet (which demands jaws pressure and the absence of both covers, are absent) it was tolerable. A conversation with someone at the same room was an effort never mind by telephone. The HQP's speed was not much higher than the LQ-300's, and by no means enough to justify or excuse the volume of noise.

There were two worrying points. I noticed that characters printed in draft were an electric blue, quite noticeably displaced to the right or left, depending on which way the print-head was travelling at the time. This is another first, for me, and together with the same level support that both the proportional and no stroke timing are being pushed harder than they want to go. Time will tell.

The second and more serious worry was that, even with the printer power switch in the off position, when the mains lead was inserted there was a distinct electrical 'flair', the source of which I don't know.

Conclusion

Citizen's HQP-43 is the wide coverage cousin of the HQP-40, then 80 column 34 pin printer. On the plus side the styling is quite striking, and the unusually large print buffer is very welcome.

Constructors may prove adequate write time, but it doesn't inspire confidence, although there is a two year warranty. It places the manual well below one more flourishing. The reliability of cut sheet paper handling is not acceptable. It's a good idea which as practice is a liability. The volume of noise is impressive, but far the wrong reason. Provision of only a single font coupled with the lack of the expected 34 pin extra supply isn't good enough.

The recommended retail price is £599 and extra font cards are £25, £100 53 and £140 25 including VAT.

I'm quite baffled by Citizen's pricing policy. I have found the HQP-43 advertised for £110 plus VAT. One could almost believe the recommended price (obtained from Citizen UK) £250 is intended to make the printer appear to belong to a higher specification category than it deserves. I can't for a moment recommend it.

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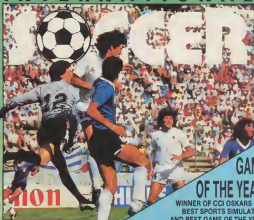
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